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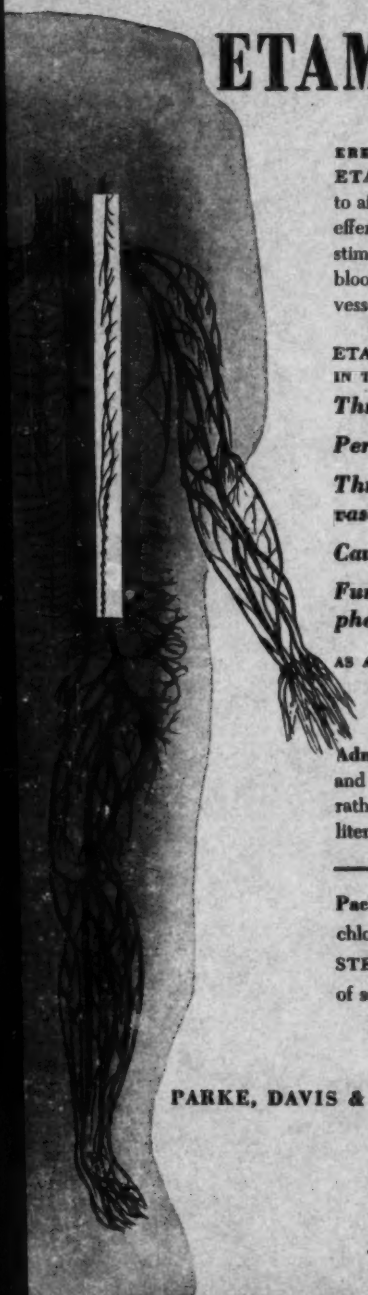

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JOURNAL
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A New Approach to Basic Science Instruction at the Postgraduate Level*

WALTER H. MOURSUND, JR.
Colonel, Medical Corps, U. S. Army
Washington, D. C.

Prior to the last World War, Professional Specialty Training in the United States Army Medical Department was given largely on the Preceptor Plan. This plan was followed by many civilian medical installations and many specialists now practicing in civilian life were trained under this system. An example of this method: If an officer in the Regular Army showed aptitude and interest in orthopedic surgery, he arranged to be assigned for 1, 2 or 3 tours of duty with General Kirk or some other qualified orthopedist. If, through industry and diligence, he learned his subject well, the principles as well as techniques, then the Surgeon General's office was advised that Captain or Major Blank had now reached a sufficient degree of proficiency and could be trusted on his own. Following this, Major Blank continued in this particular specialty throughout his professional career in the Army. This system provided the Army with officers in this type of professional specialty training at all times and was adequate to supply the limited demands of a very small army.

With the advent of the mobilization of the reserve components in the Fall of 1939 and 1940, the decision was made that, by and large, the officers belonging to the Regular Army Medical Corps, would give way in professional assignment to the temporary officers from the various civilian components. This policy was followed regardless of whether the regular officer might have been partially trained or completely trained. This policy, of course, was designed to maintain the civilian medical officers in professional assignments so that they might maintain their skills in those fields. Admittedly, this could not be done 100 per cent, but, at least, most of the regular officers were put into straight administration. At the time of the termination of the war and subsequent demobilization, a large percentage of the specialty types of practice in the Army Station and General

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

Purpose and Brief Outline of the School Designed to Present Basic Science Subjects on a Postgraduate Level to Residents in Training in the United States Army Medical Department Professional Training Program.

Hospitals was being done by temporary officers, and since most of them had sufficient credits to be separated from the military service, they, almost without exception, were separated. At this time, the Surgeon General discovered that he did not have a sufficiently large group of older Regular Army clinicians with specialty professional training to man his hospitals, and he had not had any group of the younger regular officers in training for the six or seven year period of mobilization. The attrition in the older group, the result of disease and injury, and the necessity for the utilization of certain of his better clinicians in administrative or policy making assignments, left a large hiatus in the ranks of the professionally skilled Regular Army officers. When this condition became apparent, various ideas were expressed by advisors to the Surgeon General and by the Surgeon General as to what procedure might be followed to replace the civilian officers who had returned to their civilian practices. Among these suggestions were: (1) employment of contract surgeons; (2) the training of Regular Army officers in established civilian training institutions; (3) the training by the Preceptor Plan in military installations and (4) the formulation and operation of an adequate residency type of training designed to meet the same requirements that civilian teaching hospitals meet.

There were many discussions with regard to which of the four plans should be utilized, and in 1946 the program of "refresher training" was undertaken. This comprised the assignment of officers who had been completely or partially trained in specialties prior to the war and who were now made available for the assignment in professional duties again. The plan was in reality an adaptation of the Preceptor Plan in that there was a sufficiently large group of very capable clinicians and teachers remaining on active duty during 1946 to provide clinical supervision of these "refresher" students. This type of training was augmented by courses in civilian institutions designed to refresh or provide concentrated specialty training for partially trained Regular Army officers.

During the year 1946, the decision was made to designate nine general hospitals in the Medical Department as training hospitals, the objective being the development of adequate and complete training programs in the various specialty fields of medicine. This decision was made for a number of reasons which need not be gone into at this time, but this constituted an outgrowth of the career planning encompassed in the Gerow Board Plan for the Army as a whole. It was thought that with the establishment of adequate residency programs which would meet the requirements of the Council on Medical Education and Hospitals of the American Medical Association and the American Specialty Boards, we would not only be able to train doctors in a very fine fashion, but, in addition, improve the caliber of practice in certain specialties as the result of changing our institutions into formal teaching hospitals.

The Medical Department had had the experience of the previous year in refresher training and was of the opinion that the clinical material was more than adequate to provide experience on a broad plane in almost every specialty. Obviously, certain hospitals did not have certain types of material and these

hospitals were not considered for residency training in the particular specialty in which they were short of material. It was deemed that the clinical material was adequate in any hospital finally designated for residency in a specialty.

In an effort to bolster the clinical teachings by the regular officers and a few temporary officers in the specialty fields, a program of consultants' services was established. This service in brief comprised the utilization of outstanding clinicians in the areas adjacent to our teaching hospitals as teaching and visiting consultants. These consultants were expected and instructed to come into the hospitals from one to three times weekly to teach by means of didactic lectures, formal ward rounds, conferences and bed to bed rounds, very much as the visiting staff men do in civilian medical installations. This program seemed to please the representatives of the Council on Medical Education and the American Specialty Boards so that a number of our hospitals were temporarily or permanently approved for residency in various specialties.

The Surgeon General has consistently adopted the attitude that the training in military hospitals must be broad and adequate in every respect, not merely to conform to Board or Council on Medical Education requirements, but to exceed these whenever possible. One of the problems which the Division on Education and Training in the Surgeon General's Office was forced to meet was the problem of basic science training. During 1946 to 1947, this problem was met by three approaches: (1) The various civilian institutions located adjacent to certain of our teaching general hospitals were asked to set up basic science courses for residents at these teaching hospitals. (2) Civilian medical institutions were asked to set up or spaces were requested in already formulated basic science courses of from one to four months' duration. (3) The teaching of applied basic science at the bedside was emphasized insofar as the capabilities of the available teachers permitted.

While these three approaches were valuable, the first two frequently resulted in the assignment of additional duties to already heavily burdened preclinical staffs in the medical schools and as a result, quite frequently, eventuated in "rehash" courses of freshman and sophomore medicine. The third approach was somewhat limited by the backgrounds of the various regular officer and civilian consultants and teachers. As has been said many times, the clinician who is able to apply the basic sciences at the bedside is a rather rare individual and all too often the press of clinical medicine does not permit adequate coverage of all the phases of the basic disturbances in physiology, biochemistry, pharmacology, etc., which might enter into the consideration of an individual patient.

As a result of these situations, a canvass was made of our residents' reactions to the various approaches to basic science teaching. The reactions on the part of these doctors, almost all of whom are intensely interested in improving themselves from professional point of view, gave us the opinion that they were not "dissatisfied" with the courses offered, nor with the teaching approaches offered, but rather they were "unsatisfied," (if one is permitted that

differentiation). The Surgeon General then decided that some new approach should be attempted. I have been fortunate enough to have attended two of the civilian institutions that gave the basic science courses and, as a result, I was asked to sit in on a conference on basic science presentation in December, 1946.

At this time Dr. Irvine H. Page was in the Surgeon General's Office in consultation on this and other matters, and he suggested that in view of the scarcity of vacancies in the better schools giving basic science courses that the Army might well consider establishing its own school. This suggestion was tentatively adopted and a program outlined which involved the presentation which will be explained to you in a few minutes. It was decided, first, that the present concept of the presentation of basic sciences might well be altered in that it was being presented to postgraduate rather than to undergraduate students and for that reason one might hope to vary the approach from the horizontal to the vertical plan. In addition, it was apparent that the instruction in basic sciences should be based on the premise that these were doctors and for that reason the approach should be the application of the principles of basic sciences to the clinical case rather than the abstract presentation of factual data. Finally, after considerable discussion, it was decided that a four months' course in basic sciences of general type should be given at the Army Medical Department Research and Graduate School at the Army Medical Center in Washington once each year to be followed by from six to eight weeks of specialized training in the basic sciences most closely related to the specialty of the resident. For example, the ophthalmological resident would spend the sixteen weeks taking the general basic sciences course, following which he would have from six to eight weeks in optics, physics of light and lenses, review of anatomy, physiology and pathology with regard to the eye. Other specialists would receive similar specialized courses after their completion of the general basic science section. I shall not discuss this second or specialized portion of the course further since it would merely mean the repetition of obvious details.

The approach to the general basic sciences is illustrated in table 1. This course is divided into three categories. Category 1 is the discussion of how the total organism or the body as a whole utilizes and metabolizes the essential substances, namely, water, electrolytes, carbohydrate, protein, etc. In category 2 the aberrations in handling of these substances by the body as a whole when affected by various modifying agents or situations such as bacterial invasion, heat and cold, heredity, rate of growth and development, the effect of radiation and drugs is presented. This, we felt, would progressively lead us to a discussion of how the systems, as systems, handle these substances contrasting basic normal metabolism with abnormal or unphysiological handling, thus arriving at category 3. It was our feeling that this approach would permit us to review most all of the basic subjects, at least in principle, without having twenty-two hours of review of anatomy and eighteen hours review of biochemistry, etc. For example, an instructor cannot present the normal metabolism of carbohydrate without dealing in biochemistry, physiology, anatomy, etc. Obviously, when

one gets to category 2, one immediately begins to come into the pathology, gross, microscopic and functional, and in category 3 all of the basic subjects must be considered in discussions of the systems.

Following the decision to approach this matter in the manner which I have outlined, it was decided that it would be impossible to find or free a sufficiently large group of regular officers to do the entire instruction in such a broad type of presentation. At that time, the decision was made to ask the various outstanding clinicians, medical investigators and professors in basic sciences to take up the particular fields that they were most interested in and in which they had done the most work. A careful evaluation was made of the teaching abilities and manner of approach to problems of the various suggested senior professors. Then the hours were broken down by subject matter in the form that you see reflected in table 2, which shows the hourly schedule. For example, during the first week, Dr. John Peters will present water metabolism; Dr. Edw. J. Van Liere and Dr. Carl Schmidt, oxygen metabolism, and so on through the entire course.

You will note that at this point the hours are set up in four hour sessions. This seems quite a radical departure from the pedagogical precept that no subject matter should be presented for a longer period than 50 to 60 minutes. This plan was adopted with "malice aforethought." We were afraid that even though we selected the instructors very carefully, they might find it easier to pick up routine lectures which they had already prepared and present the subject from the stereotyped didactic approach. It was our feeling that if we set up four hour sessions this would almost absolutely preclude the didactic presentation of the subject. The facilities at the Army Medical Department Research and Graduate School for laboratory, animal demonstration, etc., are unsurpassed. Every type of equipment that one could possibly ask for is available and almost any type of animal can be procured for demonstration. In addition, all the patients at Walter Reed General Hospital will be available for clinical demonstrations. It is hoped that approximately 30 per cent of the material will be didactic and about 30 per cent laboratory demonstration, and the remaining 40 per cent clinical demonstration of patients.

It became obvious as we planned the course that it would be impossible to coordinate or correlate this large group of instructors without some sort of organization. At that time, it was decided that we would pick out sixteen assistant professors from medical officers on duty. These individuals have been selected for teaching and research ability, and, further, they are young enough and malleable enough to preclude personality clashes.

These assistant instructors have gone to the laboratories of the senior professors this summer and early fall. They are now returning to the Army Medical Department Research and Graduate School with the material desired by the various senior instructors well in hand. We will now go ahead with the correlation of the various courses, preparation of animals for animal demon-

stration, selection and procurement of patients of the various types desired by these senior professors. As you will see, each one of the assistants has approximately three of these professors whom he will understudy and act as their assistant. It will be his job at the time of the presentation of the particular subject to have the patients available, to have their clinical histories completed, such laboratory work as might be desired done, and everything with regard to the patients well handled and prepared. In addition, with the help of the laboratory technical staff, he will have the demonstrations set up, animals prepared and all notes ready for distribution to the students.

We propose not to require note taking on the part of the students. All the material presented will be mimeographed and given to the students in advance. In discussion and seminar types of conferences, the material will be recorded and reproduced subsequent to the meeting and then copies provided the students. (In this connection, we are doing an interesting thing. We will sound movie all the laboratory demonstrations and all of the clinical patients presented. This will permit us to have a documentary record of the entire course, didactic, conference and laboratory and clinical.)

Throughout the presentation we hope that emphasis will be laid on the principles and the fundamentals underlying clinical medicine rather than a didactic factual data accumulating cram course. All of our senior professors have been asked to avoid the stereotyped routine approach of the so-called "get rich quick" cram course in basic sciences. It is our opinion that if the students leave with the genuine appreciation of the importance of the fundamentals to clinical medicine we will have accomplished the purpose of the course. We are interested not only in qualifying people to pass Board examinations but especially to develop a group of teaching clinicians in the Army whose attitudes toward clinical medicine will consistently reflect their interest in the fundamentals of basic science application to clinical medicine.

We admit that this is a tremendous program and are aware that many slips may occur. It is our feeling that, perhaps, this type of approach may represent something which can be taken over and modified to meet local situations throughout the medical educational world to answer the growing demands for basic science refresher or basic science training courses.

Many of you have been in the same quandary as we have in the Army. For the past eighteen months, we have repeatedly asked the American Specialty Boards, "What do you want for basic sciences?" It is our feeling that the nebulous answers we have received reflect a sincere, earnest attempt on the part of the guiding spirits of the various boards to improve the professional integrity of their specialties. We believe that this attitude reflects an awareness that unless fundamentals are understood by the man practicing a particular specialty he cannot do more than practice descriptive or empirical medicine in relation to that particular specialty. We are sure that the confusion that exists in the Boards is the same confusion which I reflected earlier in this pres-

entation in which I said that we approached the problem of teaching basic sciences with four different plans, no one of which has been found completely satisfactory.

We hope that the Specialty Boards will bear with us in this matter, will examine our curriculum with care and keep in mind that we do not propose to give a cram course which will permit an individual to pass an examination but rather to give a course which will awaken a genuine and thorough desire on the part of the resident to broaden his field of study to include all of the basic portions of this specialty.

In behalf of the Surgeon General, I wish to express his appreciation for your kindness in offering to let us present this very perplexing subject and may we ask for your very frank comments and criticisms. I am empowered to invite

TABLE 1. ARMY MEDICAL DEPARTMENT RESEARCH AND GRADUATE SCHOOL
Army Medical Center, Washington 12, D. C.

Approach and Time Allocations General Basic Science Course

CATEGORY I	CATEGORY II	CATEGORY III
SUBJECT	SUBJECT	SUBJECT
Water	Bacteria	Cardiovascular
Electrolytes	Virus	G. I. and Accessory Structures
Cho	Higher Organism Forms	Endocrine
Protein	Heat—Cold and Non-specific Injury	Nervous (Special Senses)
Lipid	Neoplasia	Blood and Lymph
Accessory Substances	Growth and Repair	Respiratory
Oxygen	Heredity	Supporting Structures
	Radiation	Renal
	Drugs	
TOTAL HOURS — 176	TOTAL HOURS — 168	TOTAL HOURS — 256

you as heads of the medical institutions of America to come or to send representatives to observe the conduct of this course next year. Our only difficulty is that because of the type of presentation that it is, we have limited the total class and visitors to forty-five. This will necessitate some apportionment of time and we hope that you understand that when we invite you for a two or three day period we are not attempting to be snooty nor exclusive but rather are attempting to make the course primarily for the students. You will note in the material you have at hand that there is a form requesting an allocation of space for you or for your observer. Also there is a franked envelope addressed to us and if you do desire to send some one, please let us know as early as possible so that we will not overcrowd the class.

TABLE 2.		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1st WEEK Jan. 5 - Jan. 9	8 A.M. to 12 Noon	Water J. P. PETERS Lt. Waxler, Asst.	Oxygen E. J. VAN LIERE Lt. Brooks, Asst.	Water J. P. PETERS Lt. Waxler, Asst.	Oxygen C. F. SCHMIDT Lt. Brooks, Asst.	Water J. P. PETERS Lt. Waxler, Asst.
	1 P.M. to 5 P.M.	Oxygen E. J. VAN LIERE Lt. Brooks, Asst.	Water J. P. PETERS Lt. Waxler, Asst.	Oxygen C. F. SCHMIDT Lt. Brooks, Asst.	Water J. P. PETERS Lt. Waxler, Asst.	Oxygen C. F. SCHMIDT Lt. Brooks, Asst.
2nd WEEK Jan. 12 - Jan. 16	8 A.M. to 12 Noon	Electrolytes A. B. HASTINGS Lt. Waxler, Asst.	Cho C. N. H. LONG Lt. Trainer, Asst.	Electrolytes J. L. GAMBLE Wm. Wallace, Asst. Lt. Waxler, Asst.	Cho C. N. H. LONG Lt. Trainer, Asst.	Electrolytes J. L. GAMBLE Wm. Wallace, Asst. Lt. Waxler, Asst.
	1 P.M. to 5 P.M.	Cho C. N. H. LONG Lt. Trainer, Asst.	Electrolytes J. L. GAMBLE Wm. Wallace, Asst. Lt. Waxler, Asst.	Cho C. N. H. LONG Lt. Trainer, Asst.	Electrolytes J. L. GAMBLE Wm. Wallace, Asst. Lt. Waxler, Asst.	Cho C. N. H. LONG Lt. Trainer, Asst.
3rd WEEK Jan. 19 - Jan. 23	8 A.M. to 12 Noon	Enzymology and Intermediary Metabolism V. R. POTTER Lt. Schack, Asst.	Cho (Energy) L. H. NEWBURGH Lt. Freeman, Asst.	Enzymology and Intermediary Metabolism V. R. POTTER Lt. Schack, Asst.	Protein H. B. LEWIS Lt. Schack, Asst.	Open
	1 P.M. to 5 P.M.	Cho (Energy) L. H. NEWBURGH Lt. Freeman, Asst.	Enzymology and Intermediary Metabolism V. R. POTTER Lt. Schack, Asst.	Cho (Energy) L. H. NEWBURGH Lt. Freeman, Asst.	Lipid H. O. LONGENECKER Lt. Hubbard, Asst.	Protein H. B. LEWIS Lt. Schack, Asst.
4th WEEK Jan. 26 - Jan. 30	8 A.M. to 12 Noon	Lipid H. O. LONGENECKER Lt. Hubbard, Asst.	Protein L. E. FARR Lt. Schack, Asst.	Lipid S. THANNHAUSER Lt. Hubbard, Asst.	Protein L. E. FARR Lt. Schack, Asst.	Lipid S. THANNHAUSER Lt. Hubbard, Asst.
	1 P.M. to 5 P.M.	Protein H. B. LEWIS Lt. Schack, Asst.	Lipid H. O. LONGENECKER Lt. Hubbard, Asst.	Protein L. E. FARR Lt. Schack, Asst.	Lipid S. THANNHAUSER Lt. Hubbard, Asst.	Protein L. E. FARR Lt. Schack, Asst.
5th WEEK Feb. 2 - Feb. 6	8 A.M. to 12 Noon	Accessory Factors W. J. DARBY Lt. Freeman, Asst.	Accessory Substances W. J. DARBY Lt. Freeman, Asst.	Radiation R. D. EVANS Lt. Harris, Asst.	Accessory Substances W. J. DARBY Lt. Freeman, Asst.	Radiation S. WARREN Lt. Harris, Asst.
	1 P.M. to 5 P.M.	Open	Radiation R. D. EVANS Lt. Harris, Asst.	Accessory Substances W. J. DARBY Lt. Freeman, Asst.	Radiation S. WARREN Lt. Harris, Asst.	Accessory Substances W. J. DARBY Lt. Freeman, Asst.
6th WEEK Feb. 9 - Feb. 13	8 A.M. to 12 Noon	Virus J. E. SMADEL Lt. Spitznagel, Asst.	Virus J. E. SMADEL Lt. Spitznagel, Asst.	Bacteria Y. KNEELAND Lt. Spitznagel, Asst.	Virus J. E. SMADEL Lt. Spitznagel, Asst.	Bacteria H. REIMANN Lt. Spitznagel, Asst.
	1 P.M. to 5 P.M.	Open	Bacteria Y. KNEELAND Lt. Spitznagel, Asst.	Virus J. E. SMADEL A. F. Rasmussen, Asst. Lt. Spitznagel, Asst.	Bacteria H. REIMANN Lt. Spitznagel, Asst.	Virus J. E. SMADEL Lt. Spitznagel, Asst.
7th WEEK Feb. 16 - Feb. 20	8 A.M. to 12 Noon	Adaptation to Injury H. SELYE Lt. Schulman, Asst.	Bacteria W. B. WOOD Lt. Spitznagel, Asst.	Adaptation to Injury H. SELYE Lt. Schulman, Asst.	Heredity L. H. SNYDER Lt. Harris, Asst.	Heat - Cold H. C. BAZETT L. Eisenberg, Asst. Lt. Hubbard, Asst.
	1 P.M. to 5 P.M.	Bacteria W. B. WOOD Lt. Spitznagel, Asst.	Adaptation to Injury H. SELYE Lt. Schulman, Asst.	Heredity L. H. SNYDER Lt. Harris, Asst.	Heat - Cold H. C. BAZETT L. Eisenberg, Asst. Lt. Hubbard, Asst.	Heredity L. H. SNYDER Lt. Harris, Asst.
8th WEEK Feb. 23 - Feb. 27	8 A.M. to 12 Noon	Growth S. RIEMAN Capt. Greenspan, Asst.	Neoplasia A. BRUES Lt. Harris, Asst.	Growth S. REIMAN H. J. Creech, Asst. Capt. Greenspan, Asst.	Tissue Repair LT. HENNEMAN	Tissue Repair and Convalescence LT. HENNEMAN
	1 P.M. to 5 P.M.	Neoplasia A. BRUES Lt. Harris, Asst.	Growth S. RIEMAN Capt. Greenspan, Asst.	Neoplasia A. BRUES Lt. Harris, Asst.	Neoplasia A. BRUES Lt. Harris, Asst.	Open

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8th WEEK Feb. 23 - Feb. 27	8 A.M. to 12 Noon	Capt. Greenspan, Asst.	Lt. Harris, Asst.	Capt. Greenspan, Asst.	LT. HENNEMAN	LT. HENNEMAN
	1 P.M. to 5 P.M.	Neoplasia A. BRUES Lt. Harris, Asst.	Growth S. RIEMAN Capt. Greenspan, Asst.	Neoplasia A. BRUES Lt. Harris, Asst.	Neoplasia A. BRUES Lt. Harris, Asst.	Open
9th WEEK Mar. 1 - Mar. 5	8 A.M. to 12 Noon	Higher Organism Forms D. L. GIUSTI Lt. Waxler, Asst.	Drugs A. D. WELSH Lt. Bennett, Asst.	Higher Organism Forms D. L. DE GIUSTI Lt. Waxler, Asst.	Drugs H. GOLD Lt. Bennett, Asst.	Drugs (Biotics) W. E. HERRELL Lt. Bennett, Asst.
	1 P.M. to 5 P.M.	Drugs A. D. WELCH Lt. Bennett, Asst.	Higher Organism Forms D. L. DE GIUSTI Lt. Waxler, Asst.	Drugs A. D. WELCH Lt. Bennett, Asst.	Drugs (Biotics) W. E. HERRELL Lt. Bennett, Asst.	Drugs H. GOLD Lt. Bennett, Asst.
10th WEEK Mar. 8 - Mar. 12	8 A.M. to 12 Noon	Respiratory A. L. BARACH Lt. Brooks, Asst.	Respiratory A. L. BARACH Lt. Brooks, Asst.	Endocrine D. L. THOMSON Lt. Schulman, Asst.	Nervous R. W. GERARD L. L. Boyarski, Asst. Lt. Hewitt, Asst.	Endocrine D. L. THOMSON Lt. Schulman, Asst.
	1 P.M. to 5 P.M.	Respiratory B. B. BLADES Lt. Brooks, Asst.	Endocrine D. L. THOMSON Lt. Schulman, Asst.	Respiratory B. B. BLADES Lt. Brooks, Asst.	Endocrine D. L. THOMSON Lt. Schulman, Asst.	Nervous R. W. GERARD L. L. Boyarski, Asst. Lt. Hewitt, Asst.
11th WEEK Mar. 15 - Mar. 19	8 A.M. to 12 Noon	Endocrine J. W. CONN Lt. Schulman, Asst.	Endocrine J. W. CONN Lt. Schulman, Asst.	Open	Endocrine (Cho) J. W. CONN Lt. Schulman, Asst.	Nervous W. McCULLOCH E. Henneman, Asst. Lt. Hewitt, Asst.
	1 P.M. to 5 P.M.	Physiological Aspects of Stress J. BEATTIE	Physiological Aspects of Stress J. BEATTIE	Blood and Lymph C. A. DOAN Lt. MacDuffee, Asst.	Blood and Lymph C. A. DOAN Lt. MacDuffee, Asst.	Endocrine (Cho) J. W. CONN Lt. Schulman, Asst.
12th WEEK Mar. 22 - Mar. 26	8 A.M. to 12 Noon	Blood Pigments C. J. WATSON Lt. MacDuffee, Asst.	Nervous (Autonomic) G. K. MOE Lt. Hewitt, Asst.	Blood and Lymph C. MOORE Lt. MacDuffee, Asst.	Nervous (Autonomic) G. K. MOE Lt. Hewitt, Asst.	Blood and Lymph C. MOORE Lt. MacDuffee, Asst.
	1 P.M. to 5 P.M.	Nervous W. McCULLOCH E. Henneman, Asst. Lt. Hewitt, Asst.	Blood Pigments C. J. WATSON Lt. MacDuffee, Asst.	Nervous (Autonomic) G. K. MOE Lt. Hewitt, Asst.	Blood and Lymph C. MOORE Lt. MacDuffee, Asst.	Open
13th WEEK Mar. 29 - Apr. 2	8 A.M. to 12 Noon	Blood and Lymph R. L. HADEN Lt. MacDuffee, Asst.	Cardiovascular M. B. VISSCHER Lt. Jackson, Asst.	Liver J. L. BOLLMAN Lt. Trainer, Asst.	Cardiovascular M. B. VISSCHER Lt. Jackson, Asst.	Liver J. L. BOLLMAN Lt. Trainer, Asst.
	1 P.M. to 5 P.M.	Open	Blood and Lymph R. L. HADEN Lt. MacDuffee, Asst.	Cardiovascular M. B. VISSCHER Lt. Jackson, Asst.	Liver J. L. BOLLMAN Lt. Trainer, Asst.	Cardiovascular M. B. VISSCHER Lt. Jackson, Asst.
14th WEEK Apr. 5 - Apr. 9	8 A.M. to 12 Noon	G. I. A. C. IVY Lt. Trainer, Asst.	Cardiovascular A. M. FISHBERG Lt. Jackson, Asst.	G. I. A. C. IVY Lt. Trainer, Asst.	Cardiovascular T. WINSOR Lt. Jackson, Asst.	G. I. A. C. IVY Lt. Trainer, Asst.
	1 P.M. to 5 P.M.	Cardiovascular A. M. FISHBERG Lt. Jackson, Asst.	G. I. A. C. IVY Lt. Trainer, Asst.	Cardiovascular T. WINSOR Lt. Jackson, Asst.	G. I. A. C. IVY Lt. Trainer, Asst.	Cardiovascular T. WINSOR Lt. Jackson, Asst.
15th WEEK Apr. 12 - Apr. 16	8 A.M. to 12 Noon	Cardiovascular W. F. KVALE Lt. Herndon, Asst.	Cardiovascular H. TAUSSIG Lt. Jackson, Asst.	Cardiovascular H. TAUSSIG Lt. Jackson, Asst.	Supporting Structures K. WAKIM Lt. Henneman, Asst.	Renal A. C. CORCORAN Lt. Herndon, Asst.
	1 P.M. to 5 P.M.	Open	Cardiovascular W. F. KVALE Lt. Herndon, Asst.	Supporting Structures K. WAKIM Lt. Henneman, Asst.	Renal A. C. CORCORAN Lt. Herndon, Asst.	Supporting Structures K. WAKIM Lt. Henneman, Asst.
16th WEEK Apr. 19 - Apr. 23	8 A.M. to 12 Noon	Supporting Structures T. L. DOUGHERTY Lt. Henneman, Asst.	Renal A. C. CORCORAN Lt. Herndon, Asst.	Open	Renal T. ADDIS Lt. Herndon, Asst.	Supporting Structures H. M. EVANS Lt. Henneman, Asst.
	1 P.M. to 5 P.M.	Renal A. C. CORCORAN Lt. Herndon, Asst.	Supporting Structures T. L. DOUGHERTY Lt. Henneman, Asst.	Renal T. ADDIS Lt. Herndon, Asst.	Supporting Structures H. M. EVANS Lt. Henneman, Asst.	Renal T. ADDIS Lt. Herndon, Asst.

Correlation and Continuity in Medical Education*

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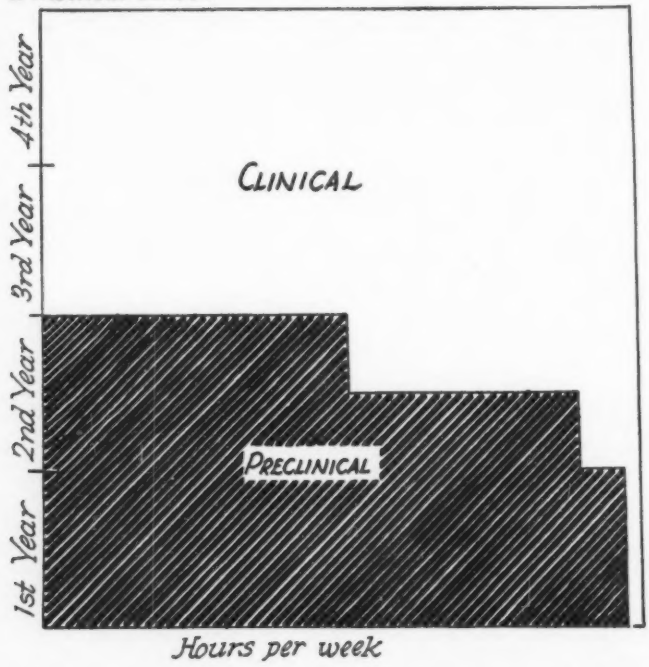
Professor of Surgery, University of Texas, Medical Branch
Galveston, Texas

The science of medicine is so complex and encompasses so many of the fundamental sciences that it has become almost impossible to include the pertinent material of the various subjects in the course of four years undergraduate study. It is imperative that we overcome this difficulty and give the student the pertinent material of these various branches of science in a manner in which he can both assimilate and retain that which he must use. Obviously, it is impossible

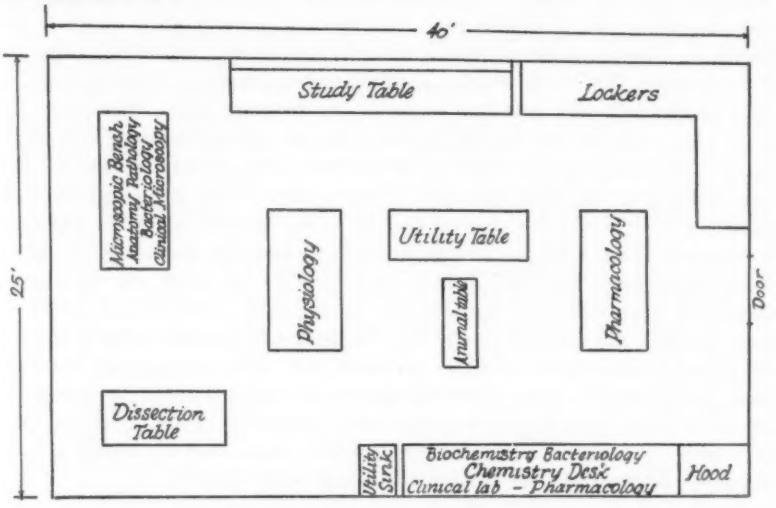
Fig. 1. The distribution of hours of instruction in the preclinical and clinical subjects taken from the schedule of a medical school.



for one individual to master all of the subjects required in medicine when any one of these subjects is too broad to be in itself mastered by any individual.

It is obvious that there is much dissatisfaction with what we are accomplishing in this direction. We must recognize the criticism being directed against us by such clinical groups as the various certifying specialty boards. Only recently these boards have considered the desirability of requiring all candidates to pass

first a basic science examination before admission to the various specialty examinations. And, it is their expressed opinion that it will require that the candidate spend at least six months in further study in the preclinical sciences before he would ordinarily be able to pass such an examination. Such an action is a direct declaration that the necessary training or understanding is not obtained during our usual course of medical training to prepare an individual properly for the practice of clinical medicine even in a narrow specialty. The charge is much more serious than the implications of a basic science examination designed to eliminate those who have not had routine instruction in the fundamental sciences.



UNIT ROOM

Figure 2 A possible floor plan to house a group of 16 students equally distributed between the four classes In this area the students would do their individual required work.

It is, therefore, our responsibility to correct this situation. It is with this in view that the following proposals for the correlation of the various subjects constituting medical education, together with a scheme for the continuation of these studies throughout the four years, is presented. The term "continuation" is used here in a special sense applied primarily to undergraduate teaching rather than to a postgraduate program. I have deliberately taken this liberty with terminology to emphasize the lack of continuity in our undergraduate teaching.

Our present medical curriculum is essentially on a horizontal plan with the grouping of the individual fundamental subjects as isolated departmentalized units in a block of time followed by a similar grouping of the clinical subjects in a subsequent period (Fig. 1). It appears that the arrangement should

best be on a vertical plan with an integration of these two broad divisions. For the purpose of obtaining correlation, it is suggested that students of the various class levels of training be brought into close association in small groups. As a working basis, it is proposed that such groups or units be made up of four students from the first year class and the survivors of this number of students in each of the second, third and fourth years. Interns and residents from the associated teaching hospitals and a member of each of the preclinical and clinical staff of the medical school faculty would complete this unit.

This group would be housed as a unit in such a manner that their individual work could be performed in these surroundings (Fig. 2). The first year students could do their dissection here. It might be proposed that a body be dissected to a certain point without dismemberment so that it could be used for demonstration. This body would be kept for demonstration purposes until the class of the following year had proceeded to the same point; whereupon this older body could be used for further dissection and dismemberment. This would make always available a dissection which could be demonstrated by the first year student to the other members of the group. Their individual work in physiology, pathology, physiological chemistry, and so forth, would be continued in this same area. The area should be equipped, likewise, for studies in microscopy, bacteriology and clinical microscopy. The use of visual aids in teaching should be developed and representative photographic preparations should be kept intact in this physical group. This might constitute, for example in pathology, color photographs of fresh specimens both from autopsy and operating room and grouped to demonstrate the disease of a particular system such as the stomach. These photographs, together with microscopic slides, could be filed as a unit for ready reference, not only by the student who is studying pathology, but by those who are later studying cases in the hospital.

A degree of correlation would result if the first and second year students could observe the needs of the third and fourth years and the clinical students could have ready access to the subject matter of what had gone before. A well organized storeroom would be required. Ready reference to the material previously studied would give a continuation of contact with the fundamental sciences during the period of clinical training of the student and house staff. It is only by long association that we may hope to obtain a working familiarity and integration of a basic foundation on which to build medical education.

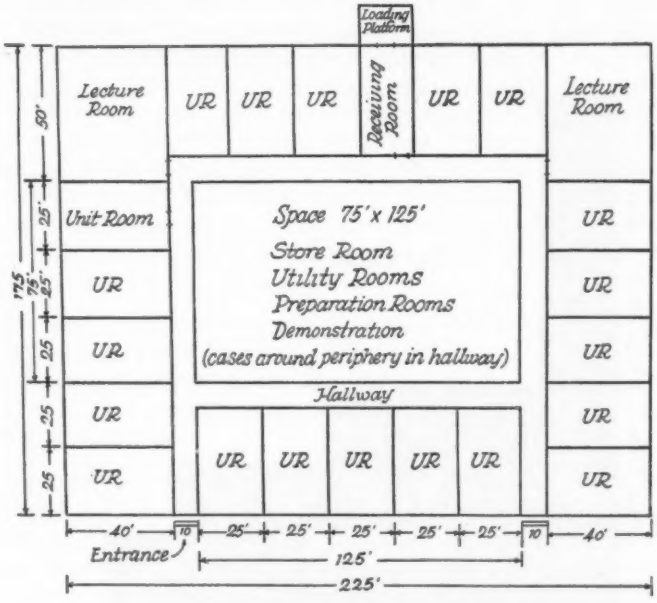
The preclinical and clinical staff members attached to an individual group would not be expected to act as the sole instructors of the unit. They would be the advisors of the unit and might conduct weekly seminars or conferences in which one hour would be assigned to a preclinical subject and a second hour to clinical problems, with all members of the group present. In these rather informal discussions the students could be expected to present prescribed subjects while the staff members would guide the proceedings. In discussing this phase of the activity of the group with my colleagues, various members have raised the objection that no one individual could direct the discussion in the preclinical field. Obviously, this is quite true and at the same time it emphasizes what is

being expected of the student beyond the capacity of the faculty.

In the course of time a faculty exposed to this kind of program would make a more critical selection of material appropriate for the student's needs. Such a situation should undoubtedly result in better correlation of the subject matter presented with the consequence that by the end of four years of medical school the student would have a much better understanding of medicine and a much firmer basis for his future development.

Our responsibility to medical education goes beyond the mere instruction of undergraduate students. Original investigation must be largely the responsibility of the medical faculty. Since medical research progressively involves to a

Figure 3 Floor plan of an installation to care for 400 students The entire layout is on one floor with a storeroom, preparation rooms, etc. located in a central island.



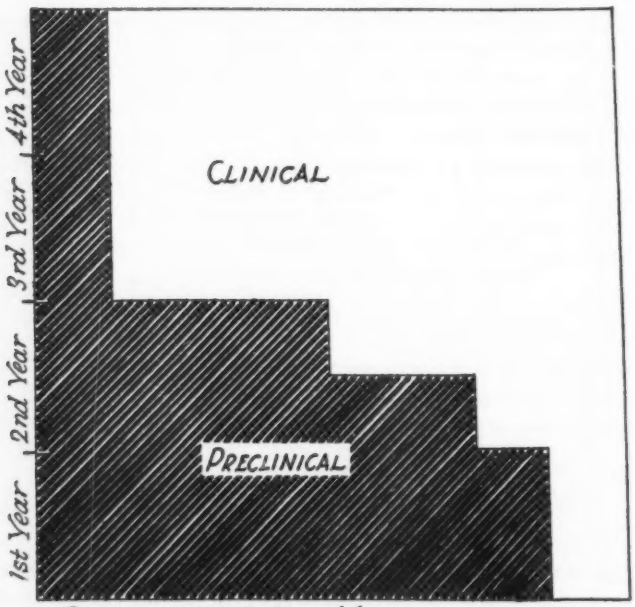
Floor Plan-25 Unit Rooms on Single Floor

greater degree an understanding not only of the clinical aspects of disease but also the application of the basic preclinical sciences, the final result of the close association between the preclinical and clinical faculty should become evident in the type and superior character of research pursued, once sufficient time has elapsed to reveal the benefits of this correlation and continuation of their medical studies.

The introduction of this scheme must immediately present many difficulties which can be solved mainly by trial and error and must have the benefit of the mature consideration of many individuals. In the beginning, great flexibility

would be absolutely imperative, both as regards physical plant and subject matter. Formal instruction in large groups need not be changed. The individual student, in small groups, will work in a single designated area containing the necessary materials for initial use and subsequent ready reference. The total space requirements need not be prohibitive, because the present reduplication of facilities would be unnecessary (Fig. 3). There would be continuous use of the space instead of having large laboratories which stand idle and empty for long periods. A highly efficient storeroom containing not only apparatus but also charts, slide sets, photographs, etc., would be a prerequisite. The arrangement should result in considerable self instruction and continued contact with what has gone before and some insight as to what is to come. In time rigid departmental lines would disappear.

Fig. 4 The distribution of time indicated here need not be scheduled hours but rather the estimated ratio of time which would result from grouping preclinical and clinical students together



It would seem that the present horizontal scheme used in medical education must be converted to an integrated vertical system of continuous training (Fig. 4). There would be difficulties and problems, but some plan removing the present dissatisfactions and inadequacies is mandatory. Might not some scheme such as the one here outlined be developed and contribute to the solution?

The Teaching of Medical Biochemistry*

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The growing importance of biochemistry to medicine is evidenced in many ways, yet is probably least recognized by the biochemist himself. Preoccupied by the problems in his own sphere of research, he has too frequently been unwilling or unable to grasp the role which his science can play in medicine. As a result, the integration of biochemistry with medicine has reverted largely to his clinical colleagues, whose understanding of the fundamentals of the subject often leaves much to be desired.

In the migration of our school to a new community, we were accorded the unique opportunity by our new clinical staff of meeting practicing physicians who were both genuinely interested and receptive to a better understanding of biochemistry. But this attitude carries with it added responsibilities for the teaching staff of the department. Our assumption of these new duties has given the department of biochemistry a higher standing in the medical community than is generally attained in most medical schools. On the other hand, our increased contacts with our clinical colleagues serve to bring home to us the realization of the need for a closer integration and correlation of our science with medicine and emphasize the primary purpose of every department in the medical school—the education and training of the physician.

With this objective in mind I wish to recount briefly how we have progressed, partly by accident, partly by design, and frequently by force of circumstances, to shift the teaching emphasis in our department from purely theoretical fundamentals to a more practical interpretation of biochemistry as it is applied to man in health and disease.

Among the many factors essential to the best correlation of a physiological science with medicine, the most significant has been personnel—familiarity on the part of the teaching staff with the clinical applications of biochemistry. This has been attained only through the active aid of the associated hospital staffs and laboratories and by the perseverance and support of our pathology department.

The first step in this direction came with the appointment of each member of our staff as consulting biochemist to one of the affiliated hospitals used for teaching. We were accorded full authority for the methods used and, obviously, complete responsibility for them. By seeing the laboratory work requested, the use and interpretations made of it, the difficulties encountered—but most important, actually being called upon for consultation by the hospital staff, or in staff meetings, and clinical conferences before the upperclassmen we too have been educated in the biochemical problems which face the clinician.

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

The impact and educational influence on the biochemist, of seeing chemistry applied to medicine, cannot be over-emphasized. Our response to the clinical application has been gradual, for we are still finding new angles of approach, and to be honest, more shortcomings in the application of biochemical information to clinical medicine. Each new group of interns and residents means we have new converts to make, new worlds to conquer, because few of them have seen biochemistry in action in the hospital as we try to make it effective and useful to them.

The second most potent factor in teaching medical biochemistry is the cooperation of both our preclinical and clinical colleagues. Their understanding and support is a prime requisite to improve and maintain the status and stature of our subject in the eyes of the students.

Beginning in the sophomore year, in the departments of pathology and public health, our colleagues have grasped every opportunity to point out relationships of biochemistry to the detection and prevention of disease. Through direct questioning and impromptu "joint sessions," on hepatic and renal disease, for example, biochemical facts so frequently glossed over or omitted entirely in the freshman course are re-emphasized to the second year student.

In the junior and senior years, members of the staff of the department of biochemistry are called on for clinical conferences, whole sections are sent back to the department for clarification of some point in the physiological chemistry of man or the individual student is sent to ask us for permission to carry out some special test.

All this carries with it the implication to the student that the material presented in his freshman course must be of some practical value because he is expected to make use of it—therefore, he should understand it—not just pass the course. The importance of the student attitude attained cannot be underestimated—it is not some vague correlation he has been told about by us—he has actually been made to see it for himself. By grapevine and student gossip, this information filters down to the freshmen and our basic problem of student interest and enthusiasm is lessened because his desire to understand our subject, to meet us more than half way, has been firmly implanted by his fellow students.

Incidents, too numerous to catalogue, of the appearance of senior students, interns, residents and local practicing physicians in our freshman laboratory to consult with us on a case or bring us a specimen provide evidence to the students which is not included in the purchase price of any textbook, irrespective of the quality of its subject matter. Each such incident, indirect as it may seem, is far more influential than all our exhortations or even formal lectures by our clinical staff to the freshmen. And we have not been above conniving with our clinical colleagues to have senior students bring material from an interesting case, discuss it in a student conference in his own words. The material which we bring in ourselves from the hospitals, provokes interest, but nowhere near the impact which is provided by a fellow student or recent graduate.

Having thus keyed the student's interest to a higher pitch, our next step is to make it possible for him to respond by thinking along physiological lines. This requires curriculum changes to attain three objectives: first, to give us the student only after he has acquired some grasp of medical terminology; secondly, to provide the student with adequate opportunity to devote his time to learning how to think in physiological and functional terms and concepts; and, thirdly, to juxtapose biochemistry in the clinical years for re-emphasis and better correlation.

The first and second objectives have been attained by moving biochemistry into the last trimester of the freshman year, together with physiology, thus grouping the physiological sciences. It is my belief that one of the prime difficulties in focusing the student's attention on functional biochemistry has been the presence of the cadaver on his table in anatomy. In addition, the mass of facts he has to encompass to pass his anatomy course leaves too little time for much study or thought about the relation of biochemical facts to health or disease. Likewise, the extension of his usable medical vocabulary over that of the green freshman is a singular help to him and to us. The age old alibi of conflicting demands on his time has disappeared. Correlation with physiology has eliminated much duplication, given emphasis to some repetition and joint staff conferences are pointing to even closer integration of the two courses.

The next step was to eliminate a one trimester, two hour weekly, course labeled "applied chemistry" in the sophomore year which consisted entirely of didactic work. In its place was substituted a junior correlation course in the third trimester of the junior year.

This was not accomplished in one year, rather it evolved from impromptu sessions to correlate with medicine and pathology. The next year it was a correlation course in the Department of Medicine. The following year a separate course under our department as a chemical edition of a clinical or pathological conference was set up. The cases were selected by the Department of Biochemistry, prepared in advance in mimeographed form in collaboration with one of the ten participating clinicians and residents from cases usually studied in hospitals where the laboratory work is under the supervision of the department or from the literature where the chemistry has been carefully done.

The enthusiasm of the students as indicated by their preparation for, and participation in the discussions has been further heightened by the admissions of the participating faculty members of the limitations of our present chemical and clinical knowledge of certain disease conditions. In our opinion, this has been the most difficult feat to achieve—to add to the student's armamentarium of facts and at the same time bring to him a recognition of the limitations of our knowledge without adding to his confusion.

Of all the courses taught in medical school, ours requires more in the way of a working background of chemical knowledge and terminology. In spite of the specific requirements for admission, most students still lack an adequate

comprehension of organic, quantitative and physical chemistry. This is the greatest obstacle to genuine correlation as far as the student himself is concerned. Any structure of functional medical biochemistry built on such an insecure foundation will necessarily be shaky. Yet we cannot afford to sacrifice too much of our time to reteaching these fundamentals.

The solution of the premedical phase of this problem is not as yet attempted, nor do we purport to have such an answer. Rather we have adopted the more realistic attitude that the student as we get him is not adequately prepared and we must equip him with the necessary and bare essentials while we are teaching him medical biochemistry.

Our approach is varied, but has two chief facets: first, to impart this information to him by sandwiching it into the course right next to its application to the physiological chemistry of the body, tissues or foods. Special conferences with extra outside reading are included, along with laboratory experiments. But it is not enough for us to realize the student's shortcomings—he must himself be made aware of them and that must be done early in the course. This is accomplished by what is termed a "qualifying examination," a polite euphemism for the equivalent of a senior high school or college entrance science test, given his first day in the course.

I know of no yardstick by which we can evaluate the results of our volte face in our approach to the teaching of medical biochemistry. The training of the human mind to think, evaluate and arrive at valid, working conclusions is not susceptible of mensuration by a cataloguing of the facts which can be jammed into it. Time alone and the performance of our graduates will prove the soundness of our program. At present, we are encouraged by the change in the attitude of the students, their enthusiasm and desire to understand. We are flattered and gratified at the knowledge and information expected of us by our clinical colleagues and graduates. We are further impressed by the number of residents and our own graduates who are asking to do their basic science residency training in our department. These are perhaps nebulous, yet we feel them sign posts to our goal, the education and training of the physician in functional biochemistry.

In summary, then, we have been able, through a concatenation of circumstances, first to improve our own ability to teach medical biochemistry. Secondly, through the active, militant cooperation and aid of our colleagues we have succeeded in altering the mental attitude of our students toward the subject matter. Thirdly, with the help of the administration, by curriculum shifts, biochemistry has been able to emerge from the position of a secondary subject to one well integrated with medical thinking. Fourthly, while actually not solving the problem of premedical preparation for our subject, we have been able to circumvent its hindrances without sacrificing basic fundamentals.

The Teaching of Clinical Pathology*

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In discussing the teaching of clinical pathology as a course in the interpretation of laboratory tests, three points are important by way of background: 1. To what extent is the laboratory being used in the clinical practice of medicine? 2. How wisely is this great volume of tests being utilized? And 3. What is the purpose and content of the courses in clinical pathology being given to students today? In Table I, data are presented concerning the average number of laboratory tests per patient in four hospitals. The first is a large county teaching hospital where the economic factor is of importance in the number of tests that can be performed. The second is a large Army General Hospital where the cost factor is far less important. The third is a considerably smaller very well operated university hospital and the fourth a slightly smaller non-profit hospital. It can be seen from the average patient days that there is adequate time to study each of the patients completely. The average number of tests ranges from 6.9 to 11.9, indicating that in each hospital far more than a routine blood count, urinalysis and Wassermann or Kahn test are performed on the individual patient.

TABLE 1.—AVERAGE NUMBER LABORATORY TESTS PER PATIENT IN VARIOUS TYPES OF HOSPITALS.

	Charity Teaching Hospital	Army General Hospital	University Hospital	Non Profit Hospital
Bed Capacity	3400	2600	400	300
Average Patient Days	13.5	11.3	15.4	10.5
Average Number Tests	6.9	11.9	7.2	8.6

TABLE 2.—INCREASE IN HOSPITAL TECHNICIANS IN LAST DECADE.

Technical Personnel in All Hospitals (U.S.A.)			
	Total	Full-Time	Part-Time
1936	6,705	.....	.....
1941	11,285	9,609	1,676
1945	16,196	14,144	2,052

Represents 141% increase in 10 years.

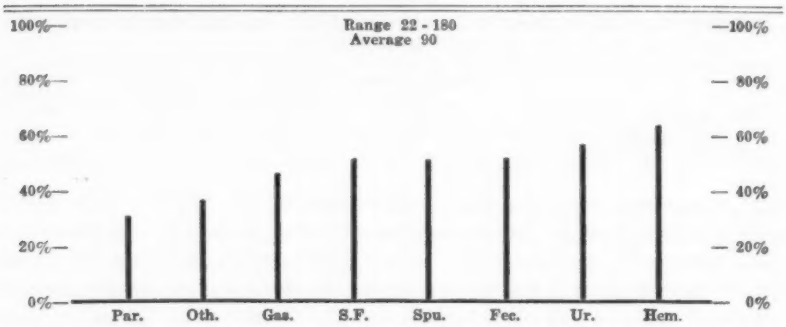
Table 2 shows the increase in number in hospital technicians in the last decade. These data have been obtained from the American Medical Association. In 1936 there were 6,705 technicians; five years later, 11,285 and by 1945 the total technical personnel had become 16,196. This represented an increase of 141 per cent in ten years. It can be seen from these two tables that laboratory tests are used to a large extent in the clinical practice of medicine in various

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

types of hospitals and this is supported by the fact that there has been an ever increasing number of technicians added to the hospital personnel to perform these tests.

The third point is concerned with how this subject is being taught in most of the medical schools on this continent. Are the students being prepared to use the laboratory in an intelligent manner? Figure 1 indicates that the range of hours devoted to this subject is between 22 and 180 hours, with the average 90 hours as indicated by a study of sixty of the available current medical school catalogues. The course is given predominantly in the second year before the students are actually ready to study patients and before the student has com-

FIGURE 1.—PER CENT SPECIFYING TECHNIQUES TAUGHT.
(48 Schools)



pleted his basic science courses. The course, however, in some institutions is given in the third or fourth year. Departments giving the course vary, with it being given chiefly in the division of medicine, and in a smaller number of instances in the division of clinical pathology. The most significant observation in Figure 1 is the fact that such a large percentage of time is devoted purely to the teaching of techniques; for example, in more than 60 per cent of forty-eight schools stating specifically what the content of the course is, hematological techniques are taught.

Since such a small number of hours are devoted to such an important phase of medical education, one wonders if it would not be wiser to have all of the techniques taught in the basic science division and to leave the hours of instruction in clinical pathology free for the interpretation and selection of laboratory tests. For example, if the techniques were to be taught in the basic science division, all of the hematological methods might very well be learned in histology; all of the bacteriological, parasitological and mycological examinations of such materials as feces, sputa and spinal fluid could be learned in a division of microbiology. Such tests as the gastric analysis could be taught in the division of biochemistry. It is a very simple matter to arrange for the teaching of these techniques in these courses where the laboratory exists and where the instructors are especially well trained in the performance of such techniques.

In pathology, one of the best methods of teaching which has been developed after the first formal instruction, is that of clinical-pathological conferences in which the clinicians present their point of view in a given case, and the pathologists show the findings of the surgical specimen or the autopsy. This method has been further extended to the tumor conference in which even a greater number of individuals take part in clarifying the whole of the problem. Such a method might be employed in the teaching of clinical pathology in which a clinician would first present briefly the findings in the patient exclusive of the laboratory tests. The student might then be asked what tests would he select and why. Following this, the members of the staff in clinical pathology would discuss the principles of the tests employed, the normal range of values for any of the given tests and the application as an adjunct to diagnosis and prognosis and treatment. The course might begin with consideration of the elementary procedures, such as the number of red blood cells in relation to anemia, the number of leukocytes in relation to leukocytosis, leukopenia and leukemia, and then the course might proceed to more complicated tests such as the biochemical constituents of the various fluids of the body and finally, it might wind up with the less well explained laboratory procedures such as hormone assays and allergic skin tests.

One of the most important facts is that the student must know that a given test can be applied wisely at certain phases of the disease and at certain times it may be of no value. This is in accord with the general teaching in pathology that the science deals with the cause, processes and effects of disease. In order that the student may use the laboratory tests in conjunction with the processes, the next two figures* have been selected simply to show how tests may give information in a given disease. The disease selected is that of Schistosomiasis Japonica and the data are taken from about 500 soldiers who developed this disease in the Leyte campaign in the Philippine Islands in the recent war. The most important problem in studying these patients was to find out whether they would develop cirrhosis of the liver, whether they might die of this disease, and how they should be treated. Figure 2 shows that when the patients were seen approximately four months after they had become infected and after they had had various types of treatment with antimony, about one per cent had abnormal liver function as shown by the serum bilirubin concentration and about twelve per cent by the bromsulfalein test. During the first 15 days of treatment with antimony, whether it be tartar emetic or fuadin, there was a slight increase in the abnormality by both tests, and by the 30th or 35th day at the end of treatment, the dysfunction was evidently much greater, as indicated by the bromsulfalein test. The interesting point is that had these patients not been followed further, the true story could not have been obtained with reference to liver function. At the end of even 60 days and again on examination at 90 days there were upwards of about 25 per cent of the group who had distinct hepatic dysfunction. After 90 or more days, up to 120-150, there was a decrease in the total number of individuals with hepatic dysfunction. The figure, therefore, shows that before treatment and four months after treatment

the percentage of individuals with abnormal liver function had dropped off to about 10 per cent, but that during the peak period of treatment and for at least two months afterwards, a larger percentage had dysfunction as a result of treatment rather than the disease.

These laboratory data supported the fact that two of the patients who died violent deaths after being under observation for six months showed only focal scattered lesions in the liver, none of which indicated that even if the worms were not killed that there could be enough ova produced in a lifetime to develop cirrhosis of the liver. Here was a clear cut correlation between laboratory findings and pathologic anatomy as shown at the autopsy table. Having answered the first question as to the probable outcome of the disease, the second question was how to treat the patient. It was found by serial stool examinations, indicating when ova were no longer detectable, that the administration of tartar emetic was a far more efficient drug than fuadin when equal amounts of the drugs were given over equal lengths of time. Quantitative determinations of the concentrations of antimony with both drugs in plasma and in the urine and stool showed that they were of the same order of magnitude. The only difference is that in the first few hours of treatment the concentration of the drug in the red blood cell is always greater with tartar emetic than with fuadin. This, then, is related to the result of the greater efficiency of tartar emetic. It is known that the red blood cell is digested by the worm as indicated by the pigment in the worms being the same as that stored in the reticulo-endothelial system of the patient. Therefore, tartar emetic was carried to the gut of the worm in greater concentration than fuadin by virtue of the amount present in the red blood cells. It can be seen from this demonstration that it was necessary to measure the concentration in many of the body fluids and constituents before the explanation could be obtained as to why tartar emetic was more effective than fuadin.

Had the tests been used without reference to serial study, no valuable information would have been obtained either with reference to prognosis or on the results of the interpretation of the efficiency of the drugs administered. These remarks might be summed up by stating that perhaps it might be wiser to teach all techniques in the basic science division and in clinical pathology to have the students benefit by a joint conference type of teaching so that the intelligent application of laboratory tests might be stressed as an aid in diagnosis and even in prognosis and treatment.

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*Not reproduced in this paper. Originals in J. Clin. Inv., XXVI, 370, May, 1947.

The Place of Occupational Medicine in the Undergraduate Curriculum*

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In presenting the subject of the place of occupational medicine in the undergraduate curriculum, the query may arise in the minds of many as to what is the precise connotation of the term "occupational medicine." The sphere of activity of the accepted clinical specialties of the curriculum for which certifying boards have been set up is well defined, but there is still considerable confusion as to the scope of the subject to be considered in this paper.

On ranging through the literature, one finds such terms as the following: Industrial medicine, industrial hygiene, industrial health and occupational medicine, all frequently implying a similar concept and scope of activity. In one medical college there will be a chair of industrial medicine, in another, one of industrial hygiene, both signifying similar objectives.

Up to recently, a satisfactory or generally accepted definition of this branch of medicine had not been proposed and, parenthetically, it must be conceded that definitions, in general, tend to be subject to certain limitations. However, the need for general acceptance of a standard term needs no emphasis.

Early this year, the Council on Industrial Health of the American Medical Association submitted a proposal to the Council on Medical Education and Hospitals that residencies and fellowships in the field of industrial medicine be considered for approval, concerning which reference will be made later in this discussion. In this proposal, the following definition was offered: "Occupational medicine deals with the restoration and conservation of health in relation to work, the working environment and maximum efficiency. It involves prevention, recognition and treatment of occupational disabilities, and requires the application of special techniques in the fields of rehabilitation, environmental hygiene, toxicology, sanitation and human relations." The term, "occupational medicine" was preferred to "industrial medicine" in the sense of being all inclusive in that it embraces all forms of occupation, industrial and otherwise.

It should be pointed out that industrial hygiene, so often used synonymously for industrial or occupational medicine, is, in reality, public health practice and, therefore, although of critical significance, only a segment of the general field.

The principal purpose of this paper is to present a brief summary of the findings of a partial survey of the medical colleges of the country with respect to the status of instruction in the field of occupational medicine; this being conducted by me under the auspices of the Council on Industrial Health of the

*Read at the Fifty-eighth Annual Meeting of the Association of American Medical Colleges, held in Sun Valley, Idaho, October 27-29, 1947.

American Medical Association with the object of promoting the introduction and more adequate recognition of the subject as a standard discipline in the curriculum. The present status of the subject ranges all the way from a complete lack of attention to the subject to recognition on the departmental level.

As a preliminary to a brief discussion of the results of this partial survey, it appears desirable to emphasize certain aspects of the present-day field of the industrial physician and certain recent trends and developments of occupational medicine; all of which, from the viewpoint of the Council on Industrial Health, justify the general acceptance of the subject in undergraduate teaching.

Physicians involved in some form of the practice of industrial medicine fall under the following categories:

1. General practitioners, their services limited to calls from small industries.
2. Consulting specialists, as in the fields of industrial ophthalmology and radiology.
3. Physicians in a part-time status in industry.
4. Physicians in a full-time or career status in industry.
5. Physicians engaged in industrial hygiene administration in federal, state and municipal state agencies.
6. Physicians on full time or part time employed by casualty insurance companies in industrial medical administration.
7. Physicians on full time employed by labor unions in the field of industrial medicine—a very recent development.

Industrial surgeons are not considered in this connection as they ordinarily limit their industrial practice to traumatic surgery and do not function as health advisors.

The scope of occupational medicine has been broadly indicated in the definition already quoted. It is chiefly made up of four components.

1. Health Conservation.
2. Medicine and Surgery.
3. Industrial Hygiene.
4. Industrial Medical Administration.

Health conservation, or the concept of positive health, is one of the most characteristic aspects of this field. Due emphasis should be placed on the fact that industrial health requires a multitude of skills to which physicians, engineers, chemists and nurses contribute. The physician, therefore, is not only a member of an industrial health team, but he is the key member, the coordinator of the program. His should be the final responsibility in the correlation of the data with respect to occupational health problems even though he need not be qualified to conduct all of the technical procedures involved.

With respect to trends and developments, industrial medicine received a great impetus during World War II, and continues to show the influence of

the lessons learned from the war period. New ideas, new methods, new procedures and new viewpoints that originated during that period are evident in all directions. The progress achieved may be divided into three groups, i. e., technical, social and educational. The social advances have proved to be even greater than those won in the technical field. A new concept has developed: that of the worker as a "total man" whose mental and emotional traits and responses are as important for high production as are his physical capabilities. In the educational field, graduate and postgraduate, as will be emphasized later, industrial medicine has, likewise, made notable advances. However, there is at present a marked deficit of trained industrial physicians in industry, official governmental agencies and in university faculties for teaching and research.

The Chamber of Commerce of the United States and the National Association of Manufacturers are cited as employer groups showing very active interest in industrial medicine during recent years. This indicates the increasing recognition by management of what the industrial physician can contribute.

One of the most striking recent developments in labor circles is the appointment of one of the outstanding leaders of the country in industrial health by the United Mine Workers of America to formulate and direct a health and welfare program for the union. This reflects the new attitude of labor in demanding health and welfare clauses in collective bargaining contracts. All in all, it may be said that medicine is playing an increasingly new role in industry.

Mention should be made of a recent step taken by the American Medical Association toward official recognition of occupational medicine as a specialty. The House of Delegates, at the last session,* approved the setting up of residencies and fellowships in occupational medicine and the requirements will be found in the June, 1947, edition of "Essentials of Approved Residencies and Fellowships," prepared by the Council on Medical Education and Hospitals. There is no certifying board as yet in this field, but this appears to be an important move in that direction.

Another significant advance is the American Academy of Occupational Medicine formed in 1946, with a charter membership of outstanding authorities in this field.

The adoption of the residency and fellowship program poses the question as to training facilities available. Apropos of this, the following recent developments are pertinent: the Institute of Occupational Medicine and Hygiene, Yale University; the Institute of Industrial Health, University of Cincinnati; the Institute of Industrial and Social Medicine, New York University; and the School of Occupational Health, Wayne University. The fellowship program at the University of Pittsburgh Medical School, and the first of its kind, merits special mention. The Long Island Medical College has announced plans for an Institute of Industrial Medicine. Such a program is also being planned for the University of Michigan School of Public Health.

If occupational medicine is to be pursued as a specialty, it must necessarily

*The session.

be taught for that purpose as a graduate subject, but occupational medicine for medical undergraduates is quite another matter. Such a small fraction of medical graduates will enter on careers in this branch that there is no occasion for more than general orientation, but this should be sufficient to assure that the graduate in medicine will have enough knowledge on which to base an intelligent attitude toward industrial health.

The Council on Industrial Health takes the position that occupational medicine should be officially accepted as a part of the standard undergraduate curriculum: (a) In the form of a course designated as such and (b) Conducted under unified direction.

The underlying reasons for this policy are as follows:

1. The need of awareness of the general medical graduate that his patient has an occupation; that this occupation may have some bearing on the etiology of an illness under consideration; that the economic results of illness may have significant repercussions in other respects; and that his treatment is not complete until he can be restored to earning ability. This implies some capacity in the search for and the evaluation of occupational history statements.

2. To prepare him with some background to grasp those problems of industrial medicine which might arise in the course of the general practice of medicine, or in his capacity as a specialist, even though not employed by industry.

3. To afford an opportunity for the medical student to evaluate this branch of medicine for a future field of selection as in the clinical specialties.

SUMMARY OF INTERIM PROGRESS REPORT OF CURRENT SURVEY

Of the thirty-six medical colleges already surveyed by personal visits, one is in a western city, thirteen are in the middle west and twenty-two in the northeastern part of the country. All of the last group are located in the states of Massachusetts, Connecticut, New York, Pennsylvania, Virginia and the District of Columbia.

TABLE 1.—INDUSTRIAL MEDICINE—36 MEDICAL COLLEGES: TOTAL CLOCK HOURS OF TEACHING

Hours	No.	%
None	4	11
1-3	3	8
4-6	5	14
8-12	10	28
15-18	8	22
20-38	6	17

Table 1 presents the distribution of total clock hours of teaching among the thirty-six schools represented. It will be noted that four provide no instruction whatsoever. The amount of time allotted in the remaining thirty-two schools ranges from one to three hours in three institutions up to twenty to thirty-eight hours in six. This instruction time is inclusive of both formal teaching and field visits and demonstrations. This wide variation in hours assigned reflects

the extreme differences in curricular recognition of this field. It should be stressed, however, that the effectiveness of a teaching program is not necessarily merely a function of the time factor. There are other significant considerations as well, too obvious to require mention.

TABLE 2.—INDUSTRIAL MEDICINE—32 MEDICAL COLLEGES: FIELD INSTRUCTION

	No.	%
Field work included	15	47
Field work not included	17	53

The general trend of instruction in these thirty-two schools is the system of formal lectures supplemented in varying degree by field work; in many instances entirely confined to lecture periods. Field instruction, according to circumstances, includes visits to industrial medical departments, special types of industrial health centers, government bureaus of industrial hygiene and workmen's compensation proceedings.

Fifteen, or 47 per cent, of the thirty-two schools utilize field instruction, while seventeen, or 53 per cent, do not employ this technique. The extreme fluctuations in teaching practice are illustrated by the following: schools conducting field practice vary from 20 to 87 per cent of the total instruction time in the number of hours scheduled for field study. For example, one school prescribes 21 lecture hours with no field periods; another only two lecture hours, but 14 hours of field instruction.

Field work, as practiced in certain of these schools, is of questionable value. If field trips are to be effective, they must be conducted with small groups of students, say, six or eight. Careful detailed advance planning and close supervision are vital to assure productive results. The industry selected should offer adequate teaching material. In fact, there are a number of difficult problems entailed in this aspect of industrial medical teaching. An alternative is the use of visual aids, such as the sound motion picture.

TABLE 3.—INDUSTRIAL MEDICINE—32 MEDICAL COLLEGES: DEPARTMENT TEACHING INDUSTRIAL MEDICINE

Department	No.	%
Bacteriology	2	6
Medicine	4	13
Departmental Status	2	6
Public Health	24	75

It will be noted that the instruction falls under the Department of Bacteriology in two schools, the Department of Medicine in four, and under the Department of Preventive Medicine and Public Health, or a corresponding combined department, in twenty-four. Occupational medicine has a departmental status in two medical colleges, i. e., Yale University and the University of Pittsburgh.

Of the schools administering instruction under a Department of Preventive

Medicine and Public Health, Jefferson Medical College and New York University have a Section of Industrial Medicine under full time direction in that department. The University of Louisville is planning a similar arrangement. Columbia University has a division of industrial medicine in the School of Public Health and the University of Michigan may adopt such a policy, these two Schools of Public Health being utilized for undergraduate medical instruction. Colorado University has a full-time section under the Department of Medicine.

TABLE 4.—INDUSTRIAL MEDICINE—32 MEDICAL COLLEGES: TYPES OF CURRICULUM

Types of Curriculum	No.	%
Formal general coverage of subject	16	50
Formal partial coverage of subject	7	22
Limited to a few lectures	9	28

Table 4 calls for clarification in that the data presented refer only to didactic or lecture programs, field work components where given not being included in the listing.

Sixteen, or 50 per cent of the thirty-two schools, attempt a general coverage of the subject, the range of hours running from eleven to twenty-six. Considerable variations are found in the range of subject matter and the weighting of components, even in courses of approximately equal length. Seven schools appear to aim at a partial coverage of the subject in periods of from 6 to 8 hours. In the third category of nine schools, in periods of 1½ to 5 hours, there is no attempt at systematic presentation, only a few scattered topics being discussed.

INFILTRATION FROM OTHER DEPARTMENTS

While there has been general agreement among those interested in promoting industrial medical education as to objectives, there have been differences of viewpoint as to methods. Some have held that concepts relative to industrial medicine can be introduced throughout the entire preclinical and clinical curricula and that this in itself might be adequate for undergraduate instruction.

While the Council on Industrial Health advocates the policy of presenting a special course or courses in the subject, it is also of the opinion that it should be supplemented by the infiltration system. As a means of providing such integration, suggested teaching material can be collected and presented to the appropriate teaching personnel in the preclinical and clinical departments. It is desirable to set up some mechanism through which the necessary cooperation can be assured. Another supplementary method is to allot a certain amount of time for the head of the instruction in occupational medicine to participate in other courses; for example, in physical diagnosis and in clinical conferences. Each of the above plans is under trial in at least two medical schools.

CONCLUSIONS

1. The undergraduate curriculum should contain a course in occupational medicine, designated as such and under unified direction.

2. The course should provide coverage of the following:

(a) The organization of industrial health services and their various ramifications including preventive measures and standard practices employed;

(b) Occupational diseases, environmental health hazards of industry and industrial hygiene methods of control;

(c) Medicolegal aspects;

(d) Supplementing of instruction by field visits in small units to industries and other agencies if practicable.

3. If there is no faculty member available to teach the subject, consideration should be given to enlisting the services of an industrial physician with faculty rank in a neighboring industry or in the industrial hygiene division of the state or a federal agency.

DISCUSSION

DR. CURRIER MCEWEN (New York University): I am much interested in what Captain Brown has said because on September 1st we began a new Division of Industrial and Social Medicine at New York University. It is not a separate department, but a subdivision of the Department of Preventive Medicine. Dr. Anthony J. Lanza has been appointed Professor of Industrial Medicine, and also Director of the new Institute which is designed as a functional organization to focus on industrial medicne the interests and talents of various departments of the Medical College as well as of other schools of the university. Our faculty believes that, in teaching, the new division's responsibilities should be primarly at the graduate and postgraduate levels. However, a series of 13 required lectures as well as several field trips and elective courses are being offered the undergraduate medical students. Doctor Lanza believes, as I do, that theoretically there should be need for relatively little undergraduate instruction in industrial medicine as such, since the point of view desired is that of all the preclinical and clinical departments in relation to industrial medicine. However, it will take time to develop such a point of view in the various departments, and hence this instruction is made the responsibility of the Division of Industrial Medicine, at least for the time being.

At the graduate level we expect to offer a long term course of study starting September, 1948, designed for physicians who want a career in industrial medicine. At the same time we hope to make available shorter intensive courses for men and women already working as industrial physicians.

We are all enthusiastic about the new program and are watching its development with the keenest interest.

The Medical School's Relation to the University and to the Practice of Medicine

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After nearly three quarters of a century, the efforts of many energetic and far sighted people to raise medical education to a university level seem to have failed. In no medical school in North America do the clinical departments and their undergraduate students function under conditions approaching those in the graduate schools of law or business administration, or the professional schools of engineering and architecture. Medicine is still taught by the apprenticeship method, and even in a school where every clinical teacher is on a fixed full time salary, much of the day of teacher and student is spent in the routine care of patients for whom the university or its affiliated hospital has undertaken to provide medical service for fees which are used to support the school, or the hospital, and to pay the salaries of the clinicians.

In many American medical schools even departments such as biochemistry, bacteriology and pathology have become closely linked to the routine care of patients, and their situation is not unlike that of a physics department which participated in the operation of a radio factory and repair shop adjacent to its laboratories. In some schools, the members of the departments of pathology and bacteriology derive their major source of income, and the technicians get most of their work, from routine care of the sick. In nearly all schools, the third and fourth year students spend much of their time in looking after sick people and in some they must work through the summer or the sick would not have attention for the period of the university vacation. In schools having full time, a 21 month period out of the four year course may be spent largely with patients paying fees comparable to those paid private practitioners so that the student acts as an apprentice to doctors in private practice.

The patients do not suffer under this scheme. The quality of service given by third year students, with some expert supervision and adequate diagnostic facilities, is as good as that given by practitioners who find it impossible to keep abreast of medicine in the two or three decades after graduation, and particularly those who carry a crushing patient load. It is the medical student of today, and the patients of the coming generation, who lose by the current situation in the clinical departments. For the student learns little in these two years which he would not learn in the first few months of a good internship. Often enough, his interest and devotion to patients during his first six months of internship is less than it was during the corresponding period of the third year. Two years of pseudo-internship have dried up the vivid meadows toward which the rocky path of training led, and his further ward work is often done to meet "Board Requirements" rather than because it is an exciting educational experience. It is today common practice to pay interns, but to charge tuition to

students performing identical tasks, or perhaps performing more than their share of the "scut work," the laboratory chores of a quantitative nature, requiring little discrimination. In the Army and Navy all such work was done by lay technicians as is the case in most doctors' offices and in many private clinics and hospitals.

The last two years in many medical schools are farther away from the university in practice and atmosphere than they were a generation ago. They are also far away physically in most institutions, although closer contact is more imperative than it ever was in the past. Sociology, cultural anthropology, psychology, physics, chemistry and biology all are more closely interwoven with medicine than they were previously. Yet many universities, which have their engineers and lawyers on the main campus, have the medical school miles, or even hundreds of miles, distant. While no engineering school would urge that the university take over operation of mines, factories, utilities and shipping in order that teaching might be done properly, it is normal for medical schools to assume responsibility for the care of patients, both indigent and paying, and even to defray part of the cost of such care. This decreases the funds available for salaries for teachers and investigators, and leads to the increasing use of students as substitutes for interns, technicians and clerks. It diminishes the time devoted to instruction in fundamentals, and retards the proper use, by physicians, of the advances in medicine. The reason many older physicians provide poor care for patients is that they learned the practice of their teachers ten, twenty, or forty years ago. They failed to learn how to study, how to keep abreast of advances in medicine, and how to solve problems. For them, and for many students today, the system of medical education has failed to perform its most important task.

The undergraduate student must have opportunity to study disease and its treatment. This he can do by reviewing case histories carefully and critically. This will include case histories in the medical literature and in the files of hospitals accessible to him, and those of patients he himself can interview and examine. The opportunity to see patients will be open to him all his life; the opportunity for careful study and comparison will be greatly curtailed after graduation. He should make no contribution to the care of patients himself, except where his study happens to broaden the view of the interns and attending physicians. He should study a few cases, under favorable conditions, very thoroughly and for as long a time as possible, and should have in mind the application to their problems of the fundamental contributions of the microbiologist, the physiologist and the clinical scientist. Every step taken by the intern and attending physician should be critically reviewed, not as a model to follow, but as part of the natural history of the patient. The causes of failure should be considered sympathetically, whether it be the patient's failure to use good judgment, or the physician's failure to grasp the problems correctly.

The techniques needed for eliciting a history, for examining the patient and reviewing the data secured by special methods of examination must be understood by the student. But this does not mean that he must have "seen a

case of every disease" or done dozens or hundreds of red cell counts. It means that a few cases must have been studied carefully, the student's findings compared with those of the staff, and his technique and conclusions critically reviewed by a competent instructor. The student must study the limitations and the value of methods. This can be done only by analysis of cases which have been followed carefully for sufficient time. The same principle applies equally to methods of therapy, and particularly, to operative techniques. The importance of details must be appreciated; but the details themselves can be mastered later when serving as an intern and resident.

It is pertinent here to quote the following remarks: "The man who realizes he must make decisions for himself is worth ten of those who wait for someone else to tell them what to do. This capacity is not so much a function of intelligence as of emotional maturity. In training, more use should be made of the case system in which emphasis is placed on solution of problems rather than on the acquisition of knowledge." These remarks, on the training of soldiers, apply with great force in medicine. Where the student is an understudy, he acquires facts, but fails to develop his ability to weigh and decide. All the crucial decisions are made by his seniors, and he is not encouraged to give these decisions critical consideration. Only when away from the patient can such matters be discussed thoroughly without creating confusion and distrust. At the bedside, the clinician can show off his style of dealing with patients, but he cannot teach medicine or surgery. The student can learn medicine only by study, that is, by his own observations of patients and his own mastery of the literature of each subject.

To provide proper clinical instruction, access to a hospital and its records are essential. Very little space, and few additional facilities need be provided for the undergraduates; wherever patients are being efficiently managed, undergraduate teaching can be undertaken. The conference rooms necessary for staff meetings provide space for undergraduate seminars, and when there is adequate provision of laboratory space for routine work and clinical investigation, the facilities for the undergraduates to do their work can readily be found.

So too with the clinical instructors. When a hospital has the facilities for doing good work and providing for patients, it will attract at once a staff of able men. Among these will be teachers and men capable of carrying out original observations. If the hospital also provides offices and examining rooms for chiefs of service and men who devote one half of their time to research and supervision of the laboratories, such men, limiting their practice to patients with diseases which are the subject of their special study, can earn a decent living without unfair competition with their colleagues or having to carry the overhead and subject themselves to the loss of time involved by maintaining private offices. Such men, and also men in private practice, may draw university salaries for administrative duties and for teaching. When the teaching is incidental to care of patients in wards or clinics, as it so often is today, it should be done without salary from the university, since instruction here is incidental to care of the sick. Every practicing physician expects to do a large amount of free or poorly

paid work. In his early days, he does it in wards and clinics or for people of modest means but engaging personality. As he grows older and better known, more and more is done for physicians and their families. The full time or part time clinician should carry the normal share of this part of practice. Those who are responsible for the care of the sick should be paid by the patient, or by the hospital or clinic which accepts responsibility for providing the care. When men devote part of their time to and draw part of their income from patients, the important matter is not whether they send bills to patients or are paid through a third party. The essential problem is whether this work encroaches on the time and the energy for which the university is paying them. If it does, a readjustment of relations is in order.

Most of the teachers in the clinical departments, most of the members of a hospital staff, will not receive a salary from the university or the hospital. Those who feel that they are repaid by having a teaching connection as an advertising asset are fooling only themselves. What the doctor does get from his ward duties and his teaching is something far more valuable. He gets a chance to remain professionally young and well informed, he is kept on the jump by eager students and interns, he has close contact with men who are advancing the techniques and increasing the effectiveness of medicine and surgery. If he has some talent for research, he gains access to facilities and to men with special training to assist and inform his work. If he wishes to familiarize himself with some diagnostic or therapeutic problem, he has available the records of many more cases than any single practitioner and may be able to collect new data far more rapidly. These are the reasons why many first rate doctors, who are not interested in full time or even part time teaching positions, will always be available to participate in the work of a teaching hospital.

When such men become absorbed in private practice, or undergo the involution which robs many older men of the ability to adapt themselves to new conditions, they drop out quietly and are replaced by younger men. Similar involutional changes in the full time men are a major problem in medical schools as in all other educational institutions. An unfortunate fact in the medical schools is that many of these older and unproductive men could earn far more in practice or in hospital laboratories did pride and custom not hold them in their professorial chairs. There is no reason to believe this aspect of behavior is changing, and it can be formulated as a law that in stable, long established medical schools the higher the proportion of full time clinicians, the higher the proportion of "dead wood." In medicine, full time is most valuable for the clinicians under 40 years of age and those most valuable to the school are rarely much older than this. For men of the very top rank—Harvey, Jenner, MacKenzie, J. B. Herrick and Thomas Lewis—it seems unimportant whether they were on full time, and age seems to have touched them lightly.

The university must provide laboratories in which clinicians as well as men in the basic sciences can teach and carry out research. The progressive surgeon needs these as much as the physician, and by providing for such men the university makes itself valuable to the hospital—it creates the atmosphere to

which one desirable type of doctor and intern will be drawn. Where space, facilities and men are brought together, funds for research from outside the hospital or university are now readily obtained. The results of such research, by offering new solutions to medical and surgical problems, attract to the hospital patients from a far wider area than could otherwise be drawn upon.

The undergraduate students should spend most of their time in university laboratories, in the library, and in the hospital record room. They will spend some time in wards, in clinics and in patients' homes, always as single individuals studying how to solve problems. Experienced instructors, who know the patients, will use part of the time in seminars with groups of students, and perhaps more time in correcting and annotating the case reports and discussions which they submit, just as physics or engineering instructors would deal with the reports on laboratory experiments or class problems and exercises. Students would be encouraged and given time to work on problems which had attracted them during their years in the fundamental sciences, or those which struck them in connection with their cases.

It is obvious that medicine cannot be taught effectively by lectures, clinics and texts. It must be learned from case study and by mastering the fundamental disciplines and scientific techniques. For the undergraduate, the hospital is a place to visit, in order to see at work the principles he learns in laboratory, library and record room. The undergraduate medical student has no more business participating in routine care of the sick during the school year than other graduate students have to work in mines, mills or law offices. For all of these students, visits to such institutions, study of their function and voluntary work as laborers during vacations are valuable parts of training. Unlike the engineer, the lawyer and the business man, the medical graduate must now put in from one to five years in supervised work before he can enter practice. Undergraduate training should not simulate this work; it should lay the foundation for its intelligent and discriminating performance. It should make the physician a scholar, capable of growing with his profession. It also should provide the stimulus and training which will lead men with medical degrees into physiology, pathology and other disciplines essential to medical practice. Here lies the outstanding failure of the present chaotic situation in American medicine; its roots are drying up.

When the introduction of full time professors at Johns Hopkins was under discussion, William Osler remarked that to separate "the heads of departments from practice is admirable on paper, but the very men most in favor of it would be the first to get the professors to break their rules." This has been fully confirmed in practical experience ever since. At the present time, several medical schools consider developing clinics the income from which would help to meet the expenses of preclinical and clinical departments. If this occurs to an increasing extent, full time will come to mean work for a clinic connected with a medical school, and will lose all relation to the idea of university standards in medical education. Where full time has been directed to this latter objective and been combined with part time and unpaid clinical instruction, it has

worked better than Osler expected. If teachers and students are forced to raise money for the school by working in pay clinics, deterioration of medical education is inevitable.

The university atmosphere is increasingly important as sociologic and scientific methods permeate medical practice. It can be obtained only by close approximation of medical schools and university facilities, by eliminating the time undergraduates spend doing what interns should be doing, and by increasing time given to mastering fundamental disciplines and to critical case study. Since the Federal government and the states have had to commandeer those sources from which our educational institutions drew their support, governmental action, in tax rebates or in direct appropriation, must provide the resources for education. Attempts to have teachers and students operate mills, mines, law offices or clinics are wholly unsatisfactory as solutions of the economic problems of education or of adequate hospital facilities.

Debate over whether all or part of a medical faculty should be on a straight full time salary is relatively unimportant; the crucial issue is what the student does with his time, and whether full time means university duty or the routine operation of a pay clinic. University salaries should be paid for teaching, research, or (to a lesser degree) for administrative work. From the academic standpoint, a professor is as much astray looking after patients in a clinic as if he were washing windows, or in an office downtown. He is no more useful, as a scholar, in a committee room, or in a departmental office "seeing people" than if he were out in consultation. An efficient faculty is one whose members spend the least time possible away from the library, the laboratory, the study and the students. Judged by this criterion, several medical schools without full time administrative officers compare more than favorably with others whose administrators take no part in scholarly pursuits.

Some very competent investigators and many excellent clinicians have graduated from schools with no scholarly atmosphere, and no salaried clinical teachers. It is possible that there still is a place for the "hospital school" of that type, just as there is a place for part time schools of law and engineering. But it is not these makeshifts, but the universities and their affiliated professional schools to which society turns for a new generation of scholars and experts.

SUMMARY: To attain university status, long regarded as desirable for medical schools, it is necessary

1. To free students from participation in the routine care of patients, indigent or otherwise;

2. To free preclinical teachers from all but consultant relations to the care of the sick or the operation of clinics;

3. To free some clinical scientists completely from dependence on income from practice, whether private or in a clinic sponsored by the school, and to free them also from administrative duties of a departmental type;

4. To separate medical schools from responsibility for operating or financing clinics and hospitals, and to associate them closely, in space and in operational sense, with the universities.

The Student and His Role in Medical Education*

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For the faculty I welcome you warmly and sincerely with the thought foremost that soon you will be our colleagues. With the advantage offered you by youth, some of you must become our betters. In this spirit, I trust we will do what we can to make the year an enlightening and maturing one.

To the first year students particularly, but also to the upper classmen, I pass along one of Dean Bachmeyer's salutary remarks to us as freshmen: Each of you has a coveted position, one that would be eagerly filled by many persons.

If you sense no spark in the idea that you are among the chosen, perhaps one of behavior's more interesting laws might arouse you. It is likely that I impart nothing new when I tell you, the more recent the memory acquired the more vulnerable it is. However, this fact has peculiar significance to those acquiring habits of mind. If there were no other reason to apply ourselves to learning during youth with as much zest as may be mustered, it behooves us to garner memories that will be rich and full, since as they become past memories they become accordingly relatively invulnerable. As Daniel Drake, the wellspring of this school put it ever so aptly more than a century ago, "The first inscriptions on the tablet of the mind are the last to be effaced." All that we have learned about the matter since Drake has gone to establish this law. If you are to be spared an eclipse during what you but not we, now consider to be advanced age, you should make certain that your past memory abounds with thoughtful accumulations.

There probably never was a convocation during which students were not proffered advice, and I will begin this duty with a few kindly words which I am inclined to believe I would have welcomed at your stage of development. A perennial topic for discussion among those concerned with education is that of learning method as opposed to learning facts. Facts are knotty things, and all of us must learn a modicum of them by rote since early in the game particularly, they seem to relate to nothing. We should never be satisfied with an accumulation of information; a considerably more profound attitude than an arrayal of facts is the ability to relate the subject to the whole. It is a sign of health to be continually testing newer knowledge to see where it fits. This is not a particularly onerous affair when one accepts Schiller's advice to "remove the watchers from the gates of intelligence." It is akin to that excellent psychiatric tool free association, depicted so beautifully by Coleridge when he wrote "the streamy nature of association, which thinking curbs and rudders."

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*From the Department of Neurology, University of Cincinnati College of Medicine. Convocation address delivered September 22, 1947, at the University of Cincinnati College of Medicine.

Nowhere have I heard or read a better expression on the nature of synthesis than Cardinal Newman's in his great essay, "The idea of a university," where he said, "That only is true enlargement of mind which is the power of viewing many things at once as one whole, of referring them severally to their true place in the universal system, of understanding their respective values, and determining their mutual dependence. Thus is that form of universal knowledge . . . set up in the individual intellect, and constitutes its perfection. Possessed of this real illumination, the mind never views any part of the extended subject-matter of knowledge without recollecting that it is but a part, or without the associations which spring from this recollection. It makes everything in some sort lead to everything else; it would communicate the image of the whole to every separate portion, till that whole becomes in imagination like a spirit, everywhere pervading and penetrating its component parts, and giving them one definite meaning."

I would like to assure you that you may beneficially integrate that culture which you have already acquired with the medical knowledge you are about to garner. This synthesis becomes meaningful when it is recognized how limited we are in providing for the wants of the ill with formulations proceeding from acquisitions in medical school.

In the American milieu contemplation of things cultural remains an occupation reserved for those who may be considered not quite normal. In this particular aspect I cannot too strongly urge your deviation from normality, if that be thought of as having those characteristics possessed by the greatest number. You may hardly do an effective and happy medical practice if you remain afraid to brush aside those innuendos of the immature, those persons who will not outgrow childish notions, one of the more absurd of them being that an acquaintance with culture is correlated with effeminacy. Mark Twain was enunciating somewhat the same idea when he said, "If your doctor knows only medicine, you may be sure that he does not know even medicine."

Though I would not choose for you from among knowledge, I would like to make a practical recommendation, to urge you not to relinquish the study and, more important, the continued testing of your ability to use your own language. The physician has been at a disadvantage lately by his limited ability to express himself which is about proportional to the length of time that he has spent in medicine. I cannot begin to describe the grief that such a deficit engenders.

An appreciation of the value of language leads to the acknowledgment of three rules for good expression. The first and possibly the most important is to have a point; the second is to make it out, and the third is that it should be made out in eighteen-carat, impeccable, idiomatic English. The occasional appropriate and graceful use of the vernacular may be helpful and should, of course, be ever at the disposal of the skillful; the trouble is that the insecure use it far too often. The habit of throwing in some bit of Greek or Latin, languages even less

familiar to students of medicine than the King's English, is pernicious to the furtherance of his use of his own language and what is more, is substitutive for thinking.

The way of using language as an instrument distresses many scientists, for their aim is to pin a word down to a specific meaning, and they would be completely happy only if they could eschew words altogether and use symbols as the chemists and physicists do. I need hardly tell you that this is not a course that may be followed by those whose commodity is people.

The best guidance that I know about in the development of habits of thinking is to read the best that has been thought and said in the world. The effect of keeping good company in literature is exactly what it is in life. Keeping good company is spiritually dynamogenous, elevating, bracing. It makes one better. Keeping bad company is disabling; keeping indifferent company is enervating and retarding. You may not be aware how few of you will have the fortitude to follow this reasonably straightforward and valuable recommendation. Universal literacy, so called, has in its ruthless manner very nearly obliterated the best that has been thought and said, as our increasingly blunted senses are bombarded by stuff geared to a lowest common denominator.

Before leaving the topic of the cultured student and physician, I would like to present a pertinent excerpt from a "Letter to a seventeen-year-old son"[1] in which an unusual father discusses decisions his boy will soon have to make regarding choice of occupation and training therefor. The paragraph that concerns us particularly at this moment is as follows:

> Medicine, for instance, is a pretty good profession, especially for one of your temperament which combines a better-than-average knack of getting along with people and a mechanical and scientific bent. But too many of our American physicians, though expensively trained and full of medical information, are dull fellows and unenlightened citizens because their knowledge of people is limited to their specialty. This fact shouldn't discourage you from being a doctor; it should simply discourage you from being the kind of doctor who thinks human beings are just digestive machines with pocketbooks, or that the circulation of the blood is more important than the Constitution of the United States.

We may now pass on to a topic that I am constrained to discuss because of its seeming mundaneness. The medical student and physician have not escaped a particular blight of modern education, namely unkindliness. It has been said[2] that ours is the century of the uneducated Common Man, of the perpetually adolescent Common Man, of the Common Man unskilled in the art of living. He is blatantly vulgar, ill-mannered, boorish, unsure of himself, hungry for happiness, not so much a man as a boy who has outgrown his britches.

In our own endeavor, I am often disheartened by the meanness of person to person, of the hospital orderly, clerk, social worker, nurse or doctor to the ill person. Such petty tyranny is rampant among our so-called civil servants,

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1. Harper's Magazine, 1945.
2. Bernard Iddings Bell: "We are indicted for immaturity." *New York Times Magazine*, July 20, 1947, p. 8.

whose lack of civility furnishes a continuing argument for private enterprise. Shakespeare called it "the insolence of office." In this postwar era of hardness, everyone seems brittle to the breaking point. It is difficult to know what has become of the innate refinement and good manners of yesteryear, now so old-fashioned as to be practically out of work.

I can do no better than turn to John Cowper Powys and borrow a paragraph from him[3] to throw upon such conduct the light that it deserves.

". . . There is nothing more expressive of a barbarous and stupid lack of culture than the half-unconscious attitude so many of us slip into, of taking for granted when we see weak, neurotic, helpless, drifting, unhappy people, that it is by reason of some special merit in us or by reason of some especial favor towards us that the gods have given us an advantage over such persons. The more deeply sophisticated our culture is the more fully are we aware that these lamentable differences in good and bad fortune spring from luck.

"It is luck: luck in our heredity, luck in our environment, luck above all in our individual temperament, that makes the difference; and moreover at any moment fortune's erratic wheel may turn completely round and we ourselves may be hit by some totally unforeseen catastrophe. It is luck, too, springing from some fortunate encounter, some incredible love-affair, some fragment of oracular wisdom in word or writing that has come our way, that launched us on the secret road of stoical-epicureanism, on the stubborn resolution to be happy under all upshots and issues, which has been so vast a resource to us in fortifying our embattled spirit. At any moment we are liable, the toughest and strongest among us, to be sent howling to a suicidal collapse. It is all a matter of luck; and the more culture we have the more deeply do we resolve in our relations with all the human failures and abjects and ne'er-do-wells of our world we shall feel nothing but plain, simple, humble reverence before the mystery of misfortune. The nobler and the more imaginative our culture is, the less do we pride or plume ourselves over these social and temperamental differences. Least of all do we allow ourselves any arrogant pose of intellectual and aesthetic superority. The only superiority worth anything is the superiority of being happier; and it may often happen that a fish, a cow, a king, a cat, a glow-worm, a communist, a sparrow, a pig, a millionaire, might be happier than we are. It is only at the very beginning of culture, in its A B C stage, that groups of people allow themselves to feel intellectually and aesthetically superior; and in the presence of the abysmal irony of what the Chinese call a really 'superior man' such arrogance grows aware of a startled, uneasy, suspicion of its stupid limitations!"

This excerpt from Powys perhaps weights luck a bit heavily, but it is more eloquent than I could be in saying that our cold, hard, modern world has done strange things to us, and man is taking something of a beating from man.

My final admonition is on the important topic of integrity. We would do what we could to save you from "the madness and the misery of one who uses the appearance of things as the measure of their reality, and makes a mess of it," as Plato put it. Perhaps no more pleasant illustration may be had of what is meant than the theme of George William Curtis' lovely story entitled "Prue and I." In it, Mr. Titbottom possessed a wonderful pair of spectacles and when he looked through them, the appearance of the object he was looking at instantly vanished, and he saw its stark reality. Sometimes the reality of things

3. "The Meaning of Culture," Norton & Co., New York, 1929.

was more agreeable to Mr. Titbottom than their appearance; sometimes less so; sometimes it was hideous and horrible, as when he looked at an eminent financier and saw a ruthless and raving wild boar. But after having used his spectacles occasionally for a while, he developed an insatiable appetite for reality. Whatever the object he looked at, whatever the cost of possible disillusionment, he could not rest content until he had put on his spectacles and seen it as it was. Even when the lovely Preciosa came in his range of vision—but the story ends there abruptly leaving only the suggestion that Mr. Titbottom may have found her reality in some respect seriously dissatisfying.

At first Mr. Titbottom was moved by curiosity even as you and I, but later he seems to have seen that the avoidance of self-deception is as much a matter of integrity as of convenience. You, like the realistic Mr. Titbottom, must have a reasonably clear notion that the deliberate acceptance of appearances, the conscious exclusion of reality, is a distinct failure in integrity, a moral failure.

Plato made it the mark of an educated man that he should be able and above all that he should be willing to see things as they are. Now most of us pride ourselves on seeing correctly and on hearing rightly. Yet I suppose nothing engenders more grief in the educational process at the higher levels, than the sprained emotions that get in the way of what might be called attending. If there ever was an age of inattention, I would surmise this to be it.

Before passing along to my next topic, I want to summarize these convocation admonitions for you. There can be little question that if you strive to synthesize knowledge from information, add to your store of culture, nurture good sense, manners, humor and good faith, unmask appearances to be willing and able to see things as they are and develop the power of attention, you will be more effective additions to the medical field than many of your teachers and happiness may be left to care for itself.

Having discharged the duties of the convocation address, I want to tell you a bit about what I personally have come to believe about the medical student and his responsibility.

In times of an aging population with youth divine and otherwise overevaluated, it is easy to fall in with the notion that no other period of life is as good, as true, as beautiful; and by so much as these years may be kept untrammelled of responsibility, by just so much is it likely that some undefinable Nirvana will be achieved. Everyone is so keen for happiness in this brash, noisy, uneasy century that its pursuit resembles nothing so much as a compulsion. The inalienable right to the pursuit of happiness has been as badly misconstrued as that other self-evident truth of the Preamble, that all men are created equal.

Though history is replete with recipes for happiness, the times have seized upon the notion that anything unbridled, undisciplined or irresponsible is in some fashion equated with it. Your presence in this company ostensibly rejects such a philosophy of naivete and I may presume that each of you including the

most youthful are interested in problems of education, including to be sure medical education.

If we look on the other side of the fence for a moment, there we find those of us who having arrived at an age when perhaps it seems more natural to connect the past, instead of the future, with the present, sometimes need to be reminded that the student has a part to play in education, which transcends those stereotyped functions usually assigned to him. We deal here with a two-edged implement that is apt to turn in the hand; I would like to whet the one side, the thesis that the student of medicine is the integer of medical education and that viewing him in perspective may not only assist him toward the happiness idigenous in maturity, but aid us with some of the problems that presently beset the profession.

Certainly one of the most serious problems confronting us today is the need for developing thoughtful participation of youth in responsible pursuits in all fields of endeavor at an early enough age so that they may reach maturity ready to act effectively. Engendering such an attitude manifestly cannot be the function of the teacher in graduate schools but rather is quite clearly the responsibility of parents. Too often we find that the shelters of childhood have become the prisons of later life. Nurturing maturity is another matter; those of us in charge of education must be kept aware that the relatively insecure may be made more uneasy, and the mature stultified in graduate schools. Domination must be consistently friendly if it is to develop the mind of the student rather than cause him to regress. To teach rigor while preserving imagination is an unsolved challenge to education.

If we accept for the present the argument that the medical student is able, and God wot he would be if the selection that he has survived were effective; it would follow naturally that we should derive from him as well as give to him. The effective teacher cannot but be impressed by the reciprocal relationship in which he stands to the mature student. The elan of the latter keeps the former from all sorts of improprieties. The better the teacher the more he is stimulated; his backward glances are fewer, and his viewpoint less likely to freeze into pattern. If the student be good, the teacher must soon be likewise. We all know that the reciprocal of this equation need not hold.

I have enunciated elsewhere the thought that the student should exert more influence on the trends of medical education than he is now doing. I favor student representation on deliberative groups intent on medical education. I would trust him with a bit of the present of medicine, as certainly we must with all of the future. "The secret of education lies in respecting the student," said Emerson, and I have yet to hear of a better key to the subject.

Of late we have become aware of insistent voices from the student body; I have heard our better students of medicine enquiring how they might still know the humanities, and asking for instruction in the history of ideas rather than the usual outline of a more restricted history of medicine. The true ethics which might be broadly defined as a science of ideal human character is another

topic that I have heard suggested by a group of alert medical students as something about which they wished to know. They left no doubt in my mind at least, that it was not the medical ethics dictated mainly by a philosophy of "economism," in which they were interested.

I have come across no better guide in my own thinking about the future of medical teaching than these rustlings as they might be termed within the student body. It is quite clear that the developing mind of the young can use the new as comfortably as the old, but the formed mind of the teacher cannot readily run along new-gauge tracks. The thoughtful student is ever willing to reveal quickly and clearly to us the deficiencies that he keenly feels, about which the teacher may be relatively complacent, since the longer he has performed, the more does his conduct have the disarming air of obviousness and certainty to himself.

Having got some hint of blind spots that seem to enlarge with age, it would appear entirely realistic to lean, quite informally to be sure, on the student to keep us in touch with reality. I myself have gradually come to the conclusion that any innovation in teaching should be tested by their attitude. It goes without saying that all medical students were not created equal and that we must weigh them and their words carefully. However, it seems to me that this group may be more trusted in this regard than our colleagues; the former having that quite singular advantage of youth, the better possibility of free entrance of a new idea to an unpreoccupied mind. We all know how difficult it is to tear down the accumulated lumber of prepossession. To preserve openmindedness while teaching current systems is an unsolved problem of education, possibly it may be approached by the concerted action of the teacher and the taught.

Therefore, I plead indulgence for the faculty in this regard: you who shall be the future faculties should recognize, and even more important, try to remember far into the future how extraordinarily difficult it is for us to bring about improvement within a discipline. A faculty may be successfully reborn or even transfused occasionally but resurrection has been relatively futile up to now. In any case reform in modern medical education has not stemmed from faculties. There are many nuances to the problem which I haven't time for here, among them is age, which somehow increases the antigens against new ideas to a very high titre. As my favorite medical philosopher, Wilfred Trotter said it, "The mind likes a strange idea as little as the body likes a strange protein, and resists it with similar energy." I needn't tell you how rigidly age fixes this particular allergy. You are of an age, and accordingly relatively of a mind. In every faculty, there are age differentials that divide it into more compartments than generations. You should become increasingly aware of the impasse that surrounds the likelihood of improvement in medical education at the faculty level.

Who, if not the faculty, should spark the constructive changes which are to occur in medical education? Perhaps this is one of the functions of the alert student. It is usually believed that the faculty sets the tone and receives from

the student what it demands. I wonder if the reverse might not be as close if not closer to the truth. If you, as the integers of medical education, improve your qualifications, you shall be furnished with better standards of reference.

If then we allow first things to be put first, as you are better students I am a better teacher by so much as you are better students, and benefits accrue in geometric proportion. Only if you are of the quality have you the right to demand to be instructed accordingly, and if you are of the quality, demand is not too strong a word. Unless you are able to require us to improve, teaching will continue stereotyped, and, instead of experiencing those things which best prepare you to deal with the commodity of medicine, which I again remind you is people, you will continue to be instructed about parts, the sum of which unfortunately does not make up the whole. Only when you are able, will we specialist-teachers submerge our considerably narrower interests and respect your eventual function as physicians.

The student body has never realized its own strength. However, I would remind you that muscles may not be flexed and weight thrown about until you are ready to thoughtfully participate in the responsible pursuits of education, in other words to use mind as nimbly as muscle. In this regard the student considerably less than we can afford to be wrong or even to proceed on faulty premises. We unlike you, have taken on protective coloration of practically every hue to say nothing of the patina of age, which render us relatively impervious. That the student is more vulnerable goes without saying; this is the other side of that two-edged implement that I mentioned previously and which I now pass along to you for your own whetting.

Professor for a Day—or—Service or Servitude—or—The Usual Dilemma of a Part Time Teacher

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"It is indeed an ancient and piteous wail and perhaps it availeth not."

I remember once, during the performance of that valuable and apparently forgotten exhibition by the junior medical students, the takeoff show on the faculty, a skit of the "nth" meeting of the faculty for the change of the medical curriculum. I remember also the wicked barbs of these fierce young idealists directed at the part time teacher. The mission of these barbs should still be unchanged. Yet attached to these instructive missiles should be notes of sincere apologies, sympathy, condolence or the like.

Like the reserve officer who is suffered only because he is needed, it is admitted that the part time teacher has a definite part, at least, in the philosophy of clinical medical teaching in that he brings the relationship of the actual practice of medicine into the cloistered halls of the college of medicine. He is supposed to be able to present the practical adaptation of the theory of medicine. Under those circumstances, he has a definite place in the medical program in spite of the often ill-concealed contempt of those who labor purely in the laboratory and who have lost most of their perspective. On the other hand, the bewildered and fatigued part timer must not lose his own sense of perspective. He should know that true progress in clinical medicine comes essentially from laboratory and basic research. He should read and encourage other clinicians to read Kinsey's remarks on the value of fundamental research in the clinical specialties (Science 105:373, April 11, 1947).

With such background and with a real interest in his work, as opposed to self-exploitation of his name in the catalogue of the college, he becomes an invaluable asset to the teaching staff of clinical medicine. The medical student will appreciate, at least, if not then, perhaps later, some of the principles he has been taught.

Both in theory and practice, it is difficult for such a teacher to acquire a background. He must:

1. Actually do a significant number of hours teaching (as opposed to the hours listed in the program).

2. Have a knowledge, at least, of some of the trends in modern pedagogy as related to medicine.

3. Acquire an alert interest in modern advances in fundamental research and of course, an acquaintance with the overwhelming masses of current literature.

4. Exhibit an interest in the current work which his colleagues are doing in other departments and in the adaptation of those findings to his own department.

In all this, one has refrained from questioning the motives or examining the make-up of such an individual who submits to or intends to submit to such a program. For the part time practitioner all this means obviously a sacrifice. Briefly, if this sacrifice becomes too marked, too extensive and obligations require him to continue, then it becomes less of a question of service and more of a definite property of servitude. No amount of reward, material or verbal, can compensate adequately the part time practitioner for an extensive program of teaching. It is up to the faculty to see that an excessive burden has not been assigned, especially to the experienced man. The assumption of such a burden by the fledgling is assumed to be common in medicine, often, but not necessarily so, to the sacrifice of the medical student. What can the college do to develop such a paragon of a teacher and to compensate him for such sacrifices of his time? A general outline of compensatory recommendations would include:

1. Encouragement rather than sufferance of the part time teacher.

2. Assignment of teaching schedules as far as possible compatible with the time program of the practitioner.

3. Arrangement of departmental conferences of definitely post graduate nature.

4. Adequate faculty promotions.

Apparently these general remarks are warranted in the specialty of dermatology because this specialty is all too commonly a part time job throughout its entire department. The chief reason for the large amount of part time teaching in dermatology has been the failure to appreciate this subject in terms of full time departments in teaching institutions, rather than the excuse of budgetary allotment. In America, it appears, even after the pertinent remarks of Professor Bruno Bloch in the late twenties, that the true value of this miscellaneous specialty group, called dermatology has not been felt sufficiently. One does not have the space here to argue, selfishly, about the identity of dermatology, its basic interdepartmental connections and associations with many specialties. In the past there may have been some justification of the views that dermatology did not deserve such full time consideration. Moreover, its own rushing practitioners did not care or did not feel the need of full time services.

Under such circumstances, the teachings in dermatology are chiefly in the vein of pleasant and pictorial presentations of clinical cases with little actual attempt to delve into the theory of mechanisms, the pathological, physiological and biophysical adaptations of the specialty. There are a few exceptions among the teachers in this country who have brought the vivid force of their personality and thinking into the presentation of this subject. The research necessary in basic dermatology in this war brought out very keenly the vast ignorance of the fundamentals of dermatology. This work emphasized also some of the beginning attempts of the dermatologists themselves and not primarily physiologists, allergists, etc., to attempt to work out some of the dynamic background in this particular field.

Since our environment is becoming so complex, since the organ called the

skin is one of the first things to meet contacts of this environment, dermatology will always occupy a role of increasing importance. With better fundamental training of dermatologists, the integration of this subject with all the fields of medicine will be done more clearly and more definitely. All this means increased demands on the part time teacher in the form of increased burdens of a heavier and more complex teaching schedule and, of course, the added load and the increased necessity of adding to his own education. Likewise, the whole undergraduate teaching program must show changes in regard to clinical applications of physiology of the skin, the relationship of biophysics to clinical dermatology and reorientation of the student in regard to the dynamic examination of the dermatological patient. The medical student must early appreciate the close relationships of the specialty of medicine and dermatology.

In order to provide for such an integrated program, and the enormous details of resident and attending staff teaching schedules plus the needed developments of the investigative phase especially of the type advocated by Kinsey, the medical school must plan for the expanded programs in undergraduate and postgraduate teaching. Most schools can really afford to allot the time increases desired. Most schools cannot afford any additional financial burdens which this would entail. What is the compromise? Merely this, the faithful part time practitioner may enter into servitude. Perhaps those relatively few institutions which can afford it should develop immediately full time departments of dermatology. These will serve as pioneering models for the remainder of the country. In the present period American medicine must, of necessity, assume terrific burdens of teaching and research. The immediate necessity is for all fields of clinical medicine.

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The 1948 Annual Meeting

Attention is again called to the fact that the 1948 annual meeting of the Association of American Medical Colleges will be held in White Sulphur Springs, West Virginia, Hotel Greenbrier, November 8-10. Those who plan to attend this meeting are urged to make their reservations early, giving time of arrival and accommodations desired. Preliminary details for the meeting are now being made. Complete information about the meeting will be forthcoming later.

The program will include important as well as interesting papers. A Round Table Conference to be devoted to the discussion of "internships" has been scheduled and will probably occupy the time of one entire session. Representatives of hospitals, medical colleges and intern committees will take part in the discussion. Any one desiring to participate will be given an opportunity to do so. The financing of medical schools and medical education in general will also be a topic for discussion. The completed program will be published in the September issue of the JOURNAL.

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The Supply of Interns

The May 1 issue of the *Journal of the American Medical Association* presents voluminous data on internships and residencies. It is impossible to touch on all of these or even to attempt to make a summary, but we wish to call attention to one item which is of great interest at this time, namely, how many graduates are there to fill the approved internships and what is the status of hospitals as to the number of interns they have in proportion to what they feel they need. The following is a summary of what the Journal says about that situation:

"April 1, 1948, 748 hospitals in the continental United States approved for internship training offered a total of 8,609 individual internships. The hospitals reported that 6,902 interns were actually on duty, indicating that 80 per cent of the available internships were filled.

"One-third of all hospitals reported no internship vacancies, and another 22 per cent reported that they had more than three-fourths of their full complement of interns. Twenty per cent reported that between one-half and three-fourths of their internships were filled. Twenty-five per cent of the hospitals had less than half of their internships filled, including 12 per cent which reported that they had no interns. Of the 87 hospitals that constitute this latter group, 57 had one or more residents, so that only 30 of the 748 hospitals studied were without any house staff.

"The larger hospitals and the teaching hospitals had the fewest vacancies. Fifty-eight per cent of the teaching hospitals had their full complement of interns, while of the nonteaching hospitals only 26 per cent reported no vacancies. Conversely, only 4 per cent of the teaching hospitals reported no interns, while 14 per cent of the nonteaching hospitals were without interns. Of the large nonteaching hospitals of 450 beds or more, 47 per cent had their full complement of interns and none were without interns. Of the nonteaching hospitals of 150 beds or less, only 23 per cent had their full quota of interns and 21 per cent had no interns."

To meet the emergency, more and

more hospitals are employing house officers—former interns or practitioners—and with very satisfactory results. It is one solution of the problem. A point to be considered is whether hospitals need as many interns as they seek and are too many hospitals approved for internships which should not be approved at all?

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Ohio State University Study of Applications

A copy of the study made by William S. Guthrie, junior dean of the Ohio State University, of applications—not applicants — for admission to medical schools in 1947 and 1948, contains much misinformation, for which Mr. Guthrie, no doubt, is not to blame, since all his data were obtained directly from the medical schools. However, the figures he cites are so much at variance with the actual figures that his report should be amended to be in agreement with the facts. These facts are the reports sent to the office of the Association of American Medical Colleges by the 78 medical schools in the United States.

Mr. Guthrie's figures would indicate that there are far more applications made than are reported by the colleges, and since many of these applications are duplicates and do not give any indication as to how many applicants made these applications, the whole study falls of its own weight. Furthermore, his analysis of applications for admission to the 1948 freshman class can hardly be accepted as being correct, because schools are still receiving applications; hence, the figures he has must be estimates and not actual figures.

He says that in 1947 there were 69,468 applications reported by 70 medical schools. His report for 1948 is based on 83,144 applications reported by 67 medical schools. As a matter of fact, the reports made to this office by 78 medical schools for 1947 numbered only 56,553, or about 13,000 less than Mr. Guthrie reports. Mr. Guthrie reports for the nine medical schools in the State of New York a total of 17,512 applications for admission made in 1947. The reports from these same colleges to this office give only 13,262 applications; still, we know nothing about the number of applicants.

Mr. Guthrie also states that there are 5,502 places in the freshman classes of all medical schools in the United States. As a matter of fact, if the reports issued over a long period of years by this Association are consulted, it will be found that for many years not less than 6,000 freshmen were admitted each year. The largest number was during the war when one freshman class numbered 6,650. The 1947 freshman class, according to the enrolment blanks sent in by 78 medical schools, numbers 6,173 or almost 1,000 more than the figures quoted by Mr. Guthrie.

It is most unfortunate that these data are so misleading, because Mr. Guthrie's report is circulated very widely. It gives valuable ammunition to those who claim that medical schools reject too many students when, as a matter of fact, they have never rejected more than fifty per cent of applicants. Then, too, it supports the contention that there is a scarcity of physicians; a staement with which many educators will not agree, although they are agreed on the fact that there is a maldistribution of physicians. It is to be hoped that reports such as Mr. Guthrie's will not be taken seriously, and that more attention will be given to reports issued from the only source—the Association of American Medical Colleges—which has in its possession actual, true data.

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Internships

Over a long period of years, several attempts have been made to endeavor to solve some, if not all, of the problems connected with the time and method of appointment of internships as well as ensuring that graduates would enter on a desirable internship. The fact that year after year, the number of internships approved by the Council on Medical Education and Hospitals of the American Medical Association has become larger and the number of graduates has not increased proportionately, has opened up

a new problem. As a result, some hospitals have found themselves without intern service. Hospital residents have increased in number, due to various factors, economic and others, which has demanded more interns.

The Association of American Medical Colleges has been concerned about the situation for a long time. A Committee on Internships wrestled with these problems for many years—but in the end every solution became nebulized. Then a more determined effort was made to do something by bringing all interested parties into the picture in an endeavor to reach an agreement on a plan which could be worked if there was full cooperation by hospitals, medical schools and graduates.

In 1945, the Association of American Medical Colleges formulated a plan establishing a uniform date for the appointment of interns by hospitals. This plan was endorsed by the American Hospital Association, the Protestant Hospital Association, the Catholic Hospital Association of the United States and Canada, and the Council on Medical Education and Hospitals.

The purpose of this plan was to eliminate the practice that a number of hospitals had fallen into of offering appointments to medical students early in their undergraduate course, in many cases even before they had completed the second year. Adherence to the plan by hospitals has been on a voluntary basis. The only element of control is that exercised by the deans of the medical schools in not releasing students' credentials before a fixed date. In general, hospitals have abided by the provisions of the plan, although a small percentage have offered appointments in advance of the specified date. While there have been criticisms of the plan, it has worked well on the whole, and no better mechanism has been suggested for accomplishing the purpose for which it was devised.

The following plan for appointments to internships beginning July 1, 1949, was adopted by the Association of American Medical Colleges in October, 1947, and was subsequently endorsed by the Council on Medical Education and Hospitals and the other organizations referred to previously:

1. Applications and credentials to be submitted only through the dean's office to hospitals, with the date for filing applications and release of credentials by the medical schools set at Oct. 15, 1948. Credentials ordinarily will consit of an executed application blank and a letter from the dean but do not preclude such letters from members of the faculty as they may wish to write, unsolicited by the candidates.

2. Applicants may visit hospitals and be interviewed by hospital intern committees, but the hospital administration shall not commit the hospital or obligate the applicant, or potential applicants, before Nov. 15, 1948.

3. No intern appointments shall be made prior to Nov. 15, 1948, from applicants who are members of the senior class in medical school. Hospitals may decline an applicant at any time.

4. Applicants shall accept or reject hospital appointments before midnight of Nov. 18, 1948.

5. These regulations shall apply only to undergraduate medical students who have not completed the fourth year of their medical school courses.

Although this plan has not been given the full and complete cooperation by both hospitals and colleges, nevertheless the result achieved has been such that it is agreed to try it out for another year before a change is made or the effort is abandoned. At the annual meeting of the Association of American Medical Colleges to be held in White Sulphur Springs, W. Va., November 8 to 10, a Round Table conference will be held to give opportunity for a full discussion of this topic by persons representing every organization interested in internships. It is hoped that this will prove effective and lead to some plan which will be workable if it is concluded that the present plan is not.

Audiovisual Education

In 1946, the Association of American Medical Colleges appointed a committee to consider and make plans for the establishment of an organization which would serve the medical schools in providing satisfactory audiovisual aids in medical education. This committee consisted of the following: Dr. W. A. Bloedorn, dean George Washington University School of Medicine; Dr. Joe Markee, professor of anatomy, Duke University School of Medicine, and Robert H. Walton, professor of pharmacology, Medical College of the State of South Carolina. This committee has made two extended reports on its activities looking toward the establishment of a Medical Film Institute. These reports were presented at the annual meetings of the Association and were published in the JOURNAL of the Association. They were also distributed widely among interested organizations and individuals.

This topic was again a subject for discussion at the meeting of the Executive Council held in Chicago, June 18 and 19. As a result of this discussion the following resolution was adopted unanimously:

The Association of American Medical Colleges has proposed, and is endeavoring to establish, a Medical Film Institute in the United States, for the purpose of creating a center of study, development and organization for the motion picture and other audiovisual media in the field of medicine.

Whereas, the Association of American Medical Colleges endorses the objective stated in Article II, subparagraph (o) of the Constitution of the World Health Organization "* * * to promote improved standards of teaching and training in the health, medical and related professions;" and

Whereas, films can improve and intensify medical instruction, are a powerful tool of health education, an important method of medical research, and a unique vehicle of international medical information and communication; and

Whereas, the potentialities of medical films are great but still largely unfulfilled because the production of effective medical films is complex and often costly, existing information on them insufficient, their distribution poorly organized, and facilities and abilities for their utilization far from universal; and

Whereas, national organizations able to plan, initiate and coordinate effectively the development of medical film production, distribution and utilization do not now exist; be it

Resolved, that the Association of American Medical Colleges request the United States Delegation to the World Health Assembly of the World Health Organization to present the need for the establishment in the member countries of national agencies capable of

(a) providing leadership in perfecting, organizing and coordinating the production, dissemination and application of films and other audiovisual media in medicine, health and their related sciences;

(b) representing effectively their respective national medical film interests with the World Health Organization and in other international relations so that maximum benefit can be derived from films and other audiovisual media in world-wide medical instruction, health education and medical research.

Dr. David S. Ruhe, of the U. S. Public Health Service, has accepted the position of director of the Institute on leave from the Public Health Service.

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Negro Students in Medical Schools

A count of the Negro medical freshman students as reported by the medical schools of the United States gives a total of 162. Of that number, 70 are enrolled in Howard University School of Medicine and 66 are enrolled in Meharry Medical College. The remaining 26 students are enrolled in 22 other medical schools, not more than 2 in any one of these schools. These figures do not stress discrimination but that by and large Negro applicants cannot meet the ad-

missions standards of the medical schools. Their college work and, no doubt, their scholarship, too, are inadequate to meet these standards. The number enrolled is nearly 3 per cent of the total freshman enrollment.

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Medical Aptitude Test

At the meeting of the Executive Council held in Chicago June 18 and 19, it was voted to enter into a contractural arrangement with the Educational Testing Service (the successor of the College Entrance Examining Board, the Graduate Record Examination Board and the American Council on Education Testing Service) to carry on the work formerly a function of the now extinct Committee on Medical Aptitude Test of the Association of American Medical Colleges. Information regarding the test can be obtained from the premedical advisers in colleges and from the deans of medical schools. The next test will be given on October 30, 1948. Registration to take the test must be made prior to the date of the test to the Educational Testing Service, P. O. Box 592, Princeton, New Jersey.

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Survey on Medical Education

In order to have a representative of general education identified with the survey of medical education, Mr. Alan Valentine, president of the University of Rochester, has been added to the committee and will serve as its chairman. Dr. A. C. Bachmeyer, University of Chicago, will be vice chairman; Dr. Donald G. Anderson, secretary of the Council on Medical Education and Hospitals of the American Medical Association, will serve as secretary. Other members of the committee are: Dr. H. G. Weiskotten, dean Syracuse University School of Medicine and chairman of the Council on Medical Education and Hospitals; Dr. Joseph C. Hinsey, dean Cornell University Medical College and chairman of the Executive Council of the Association of American Medical Colleges; Dr. Victor Johnson, director of the Mayo Foundation, and Dr. Fred C. Zapffe, secretary of the Association of American Medical Colleges.

The committee is now considering individuals for the directorship of the study. It is anticipated that notice of a selection can be made in the near future.

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Reservations for the Annual Meeting

The Greenbrier Hotel, White Sulphur Springs, West Virginia, has requested that reservations for rooms be made direct to the hotel rather than through the office of the Association. Dates of the meeting: November 8, 9 and 10, 1948.

College News

University of Illinois
College of Medicine

Two low pressure chambers designed for human experimentation have been secured for installation in the new $400,000 Aero Medical and Atmospheric Institute. The Institute, now under construction, will be used for the study of physical environment in health and disease. One of the studies will attempt to answer the increasingly important question of which patients should not be permitted to fly.

Other research will involve studies on adaptation to high altitude, the effect of small changes of barometric pressure on arthritic and rheumatic patients, the effect of high altitude on the senses of smell and taste in man, and studies on dynamics of hemorrhagic shock at high altitude.

The Abbott Laboratories of Chicago have awarded separate research grants of $4,550 and $2,850 to the University of Illinois College of Medicine in support of investigations under the direction of Dr. Milan V. Novak, head of the department of bacteriology and public health. The larger grant has been made in support of investigations in the evaluation of procedures and germicides in the preoperative preparation of the surgeon and the patient.

The second grant of $2,850 will be used for the evaluation of particle size of penicillin-procaine complex as related to effective blood levels in human patients. Patients requiring penicillin therapy will receive the benefit of considerable quantities of penicillin which the Abbott Laboratories will provide at no charge. The investigation will be administered by Doctor Novak with the cooperation of Dr. Robert W. Keeton, Dr. E. Hale and Miss Betty Spaeth in clinical and laboratory phases.

The Formfit Company has awarded a research grant of $9,000 to the College for studies designed to determine the relationship of the wearing of tight-laced corsets by women to gastric ulcers and other internal disorders. The research program will be conducted by the Department of Clinical Science, headed by Dr. A. C. Ivy. It will continue for approximately one year.

The project will include studies of gastric functions, the shape of the stomach, the rate at which the stomach empties, and the acidity of its gastric content before and after compression of the waist. Observations will be made by means of x-ray and fluoroscopy.

The VioBin Corporation of Monticello has presented a gift of $1,000 to the university for use by Dr. A. C. Ivy.

The contribution will be used for research work on the effect of substances in the mucosa of the stomach and duodenum.

G. D. Searle and Company, Chicago, has awarded a grant of $2,500 to the university to assist in a research project to be carried out under the direction of Dr. A. C. Ivy. The project involves the study of the incidence of colonic dyskinesis and its management with the hydrophilic colloid in patients with peptic ulcer.

Dr. Sol R. Rosenthal, assistant professor of bacteriology and public health at the University of Illinois, left for Paris in June, where he attended the First International Congress of BCG.

Seniors at the University of Illinois College of Medicine have named Dr. Henry G. Poncher and Dr. Eric Oldberg as the 1948 winners of the Raymond B. Allen Instructorship Award.

The award is designed to honor excellency in individual instructorship rendered by faculty members to the students. Doctor Poncher, head of the department of pediatrics, was honored for clinical instruction. The award for excellency in didactic instruction has been given to Doctor Oldberg, head of the

department of neurology and neurological surgery.

The junior, sophomore, and freshman classes in medicine also have named the recipients of instructorship awards for 1948. They are:

Junior class — Doctor Poncher for clinical instruction, and Dr. Isadore A. Rabens, clinical associate professor of medicine, for didactic instruction.

Sophomore class—Dr. Carl C. Pfeiffer, head of the department of pharmacology and pharmacognosy.

Freshman class—Tie between Drs. William J. Furuta and Parke H. Simer of the department of anatomy.

Dr. A. C. Ivy has been appointed to the board of governors of the Argonne National Laboratory for a period of three years.

Eugene A. Rosenberger, junior medical student from Lakota, N. D., has been awarded the first prize of $25 by the department of orthopaedic surgery for a paper on the subject of "Painful Shoulder." The second prize of $15 goes to William R. Larson of Highland Park; the third prize of $10, to William Oyen of Chicago.

The world's first installation of a 20 million volt betatron for cancer treatment and research will be made soon at the College. The University will pioneer in medical use of this instrument, science's newest source of high-energy x-rays and electrons. Delivery is expected in approximately five months. Dr. Roger A. Harvey, head of the college's department of radiology, will be in charge.

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Long Island College of Medicine

Dr. Frank L. Babbott, for five years chairman of the Board of Trustees of the Long Island College of Medicine and former president of the College, has retired in favor of Lauson H. Stone, attorney of New York City. Doctor Babbott will continue in his association with the College as a member of the Board. During Doctor Babbott's administration the College expanded its teaching affiliations until today it maintains arrangements with twelve borough hospitals and health agencies offering a wide range of opportunity for varied training of students. As chairman of the Board, Doctor Babbott was instrumental in initiating the medical center development fund campaign which envisions the College as part of a huge medical center serving Brooklyn and Long Island.

All Brooklyn doctors who are not graduates of the Long Island College of Medicine are currently engaged in a drive to meet a goal of $200,000 in the Brooklyn-Long Island Medical Center Campaign.

To date doctors have contributed more than $70,000 toward the objective.

The Fifth Post Graduate Course in industrial medicine sponsored by the College in conjunction with its newly formed Institute for Occupational Health held from April 5th to 16th, was well attended by physicians, personnel workers, nurses, safety engineers and others interested in the improvement of health in industry. During the two weeks course some sixty prominent figures in the industrial health field participated as lecturers and instructors, while a number of New York industries set up demonstrations in their medical departments for the benefit of students.

Enlargement of the cancer teaching program has been made possible by a grant of $24,948 from the National Cancer Institute of the United States Public Health Service. The grant will cover activity for a one year period in which students will be trained in the tumor clinics and conferences of the College's affiliated hospitals where major clerkships are offered.

Dr. Wade W. Oliver, who served for 31 years as professor of bacteriology, left his position on the College faculty early in March to become associate director of the Division of Medical Sciences at the Rockefeller Foundation. Doctor Oliver will assist in the placement of doctors from all over the world coming to America under fellowship and scholarship grants made by the Founda-

tion. The purpose of these awards is to offer opportunities for further study to promising young doctors.

Dr. Rene J. Dubos, associate at the Rockefeller Institute for Medical Research, delivered the twelfth annual Adam M. Miller Memorial Lecture on May 4.

The lecture was established in 1936 by the Phi Lambda Kappa Fraternity to honor Dr. Adam M. Miller, former professor of anatomy and dean of the College. Its purpose is to bring an annual presentation or series of presentations on some subject relating to the medical sciences before the undergraduate body, the faculty and the profession. Doctor Dubos spoke on "The Tubercle Bacillus and Tuberculosis."

Dr. Jean A. Curran, president and dean of the College, has been appointed by the Surgeon General of the Army consultant on internship and residency problems. Doctor Curran has resigned from the deanship to devote his full time to the presidency of the College. He will be succeeded as dean by Dr. Duncan W. Clark, associate dean.

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Bowman Gray School of Medicine

The first step in the establishment of the Institute of Tropical Medicine at Bowman Gray was made recently with the announcement of a gift of a capital fund of $33,000 from a New York patron for building and equipping an additional floor on the West Wing of the medical school building for housing the necessary offices and laboratories. Dr. Thomas T. Mackie, head of the school's department of preventive medicine, said that the ultimate goal of the Institute is to expand, with the development of the new Baptist Hospital, to include bed service and build up a formal graduate school of tropical medicine, making it an important center for training, research and treatment in this field of medicine. The additional space, equipment and personnel will be used as a research and teaching center for the work of the Veterans Administration in the field of tropical medicine and will make possible increased diagnostic service in chronic tropical infections to the VA and to veterans. Doctor Mackie is consultant in tropical medicine for the VA and branch chief for an area covering several states.

In addition to the VA activities, the new laboratory setup will provide supervisory medical and sanitary service for a sugar company in the Dominican Republic. One or two medical students will go each quarter to assist in field survey work and learn the problems of tropical disease in its native habitat. The first work there will be to conduct a malaria survey and survey of intestinal infections among the labor population of the plantation. Following that, the institution and guidance of preventive and control measures will bring a limited number of Dominican doctors to the Institute for work in preventive medicine and parasitology.

The Institute also plans eventually to cooperate with the mission boards of various churches in a training program for overseas workers and diagnostic and clinical service for personnel returning to this country on leave. The Institute will also make facilities available for research into local health problems to include such projects as a survey of food handlers for amoebic infection, a survey of the incidence of amoebic and hookworm infection in school children of the county, and field and laboratory investigation of the transmission of Rocky Mountain spotted fever.

Bowman Gray will establish a new cytological laboratory for the early diagnosis of cancer in the department of pathology on July 1. Dr. C. C. Carpenter, dean, who has also served as professor of pathology since 1926, will assume direct charge of the laboratory which will employ the Papanicolaou method of diagnosing cancer by studying abnormal cells that break off during the early stages of the disease and appear in the various body fluids and secretions.

Doctor Carpenter is now in New York where he will work in the laboratory of Dr. George N. Papanicolaou,

originator of the method, for two weeks and observe the technique of the diagnosis and plan of the organization of such a laboratory.

When the laboratory is established, it will be the plan to offer the service to practically all women coming to the hospital who wish it. The service will also be made available to other hospitals and doctors throughout North Carolina. Any doctor can collect the material by the use of a simple swab in his own office, after which it can be put in a suitable preservative and mailed to the laboratory. Mass surveys of all women in a given area, such as that being conducted by the state of Delaware, is one of the ultimate objects of the laboratory.

Dr. Jerry Kazuo Aikawa, graduate of Bowman Gray, and Dr. Kingsley M. Stevens, a graduate of the Harvard University School of Medicine, now an intern at Baptist Hospital, have been awarded two of the 15 postdoctoral research fellowships granted by the Atomic Energy Commission. The fifteen fellows were chosen from a total of 35 applicants for the grants from throughout the country. Doctor Aikawa is now at the University of California studying on a fellowship on virus in rickettsial diseases. Both will pursue their fellowship studies under the direction of Dr. George T. Harrell, Jr., head of the department of medicine. Doctor Aikawa will study alterations in the distribution of body fluids in infectious diseases, using radioactive isotopes, and Doctor Stevens will conduct studies in the synthesis of protein by bacteria, also using radioactive isotopes.

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Woman's Medical College

Dr. A. Charlotte Ruys, professor of bacteriology at the University of Amsterdam and president of the Medical Women's International Association, was the guest of the College on May 21st. She gave a lecture on "Health of Holland During and After the Occupation." Doctor Ruys was a delegate from The Netherlands to the Congress on Tropical Diseases held in Washington. She read a paper there on leptospirosis.

The College is the recipient of a meter for its X-Ray Department, the gift of the Stitch and Aid Circle, a group of Philadelphia women who yearly contribute equipment to hospitals in this area.

Three Alumnae returned to faculty posts beginning July 1st: Dr. Dorothy Macy, class of 1944, who after three years in internal medicine at the Mayo Clinic, is returning as associate in physiology. Dr. Annella Brown, class of 1944, following a residency at the Crile Clinic, will return as a Fellow in Surgery. Dr. Isabella H. Perry, class of 1921, will be director of the new cancer teaching program made possible in its first year through a grant by the United States Public Health Service. Two other graduates are returning to residencies at the College: Dr. Hilda Ruch, class of 1946, will be resident in pediatrics, and Dr. Katheryn O'Connor, class of 1946, will be resident in medicine.

Ursinus College at its Commencement on May 31st conferred the degree of Sc.D. on Dr. Catharine Macfarlane, research professor of gynecology of the College. Beaver College at its 95th Annual Commencement on June 6th conferred the degree of Doctor of Letters on Dr. Louise Pearce, president of the College. Dickinson College at its 175th Annual Commencement on June 6th conferred the degree of D.Sc. on Dr. Stanford W. Mulholland, head of the department of urology at the Woman's Medical College.

The Abbott Laboratories have given a grant of $1,000 to Dr. Lloyd D. Seager, professor of pharmacology, for the study of synergisms of chemotherapeutic agents in sleeping sickness. For investigation of vasopressor agents, Dr. Seager and Dr. William Weiss, associate in anaesthesia, have received grants of $800 from each of the following firms: Bilhuber Knoll, Sharpe & Dohme, Hoffman-LaRoche and Abbott Laboratories.

The College acted as host to two hundred members of the Medical Library Association May 30th. About 200

medical librarians attended the conference sessions.

Governor James H. Duff gave the principal address at the 96th Commencement. Thirty-five members of the class of 1948 received the degree of Doctor of Medicine from the oldest Woman's Medical College in the world, now the only one in the Western Hemisphere.

President Louise Pearce presided. Dean Marion Fay gave the welcome and presented the candidates for their degrees. Dr. Catharine Macfarlane presented the hoods, and Dr. William G. Leaman administered the Hippocratic Oath.

Other highlights of the exercises were: The awarding of medals to thirteen women who graduated from the College fifty years ago. Four were present to receive their awards in person.

The following prizes were awarded: The President's Prize for the best record for all four years to Katherine McDermott Herrold; the Dean's Prize for the best record in the fundamental sciences of the first two years to Kazuko Uno; the Prize in Internal Medicine for the best record in Internal Medicine to Katherine McDermott Herrold; the Prize in Surgery for the best record in surgery to Patricia Flint Borns.

A gift of over two thousand dollars to the College by the graduating class was announced.

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University of Texas
Medical Branch

The Arnold Surman Lecture sponsored by the Phi Beta Pi Medical Fraternity, was given by Dr. Charles H. Best, professor of physiology at the University of Toronto and director of the Banting and Best Institute of Medical Research. Doctor Best spoke on "The Pancreas as the Guardian of the Liver."

Under the auspices of the Phi Delta Epsilon Medical Fraternity, Dr. Morris Fishbein, editor of the Journal of the American Medical Association, spoke on "The Changes in Medical Practice During the Last Century."

The Postgraduate Division, in cooperation with the Texas State Health Department, presented a Tumor Conference May 31-June 3. The conference covered the general field of genitourinary malignancies. Guest speakers included Colonel James E. Ash, scientific director of the American Registry of Pathology, Army Institute of Pathology, Washington; Dr. William E. Costolow, professor of radiology, University of Southern California; Dr. Robert A. Moore, dean and professor of pathology, Washington University School of Medicine; Dr. James C. Sargent, professor of urology, Marquette University School of Medicine; Dr. W. W. Scott, professor of urology, Johns Hopkins University; Dr. J. R. Blundell, professor of urology, Baylor University College of Medicine; Dr. Frank Schoonover, Ft. Worth; Dr. A. O. Severance, San Antonio, and Dr. Palmer E. Wigby, professor of radiology, Baylor University College of Medicine.

Dr. Wendell H. Griffith, professor of biochemistry, of St. Louis University School of Medicine, lectured on "Methionine in Relation to Sulphur and Choline Metabolism."

A series of lectures on the physiology of the brain stem were given during May by Dr. Allen Keller, professor of physiology, Baylor University College of Medicine.

Dr. C. M. Pomerat, professor of cytology and director of the Tissue Culture Laboratory, spent a week during May at the invitation of the Mexican Government in developing tissue culture methods in the biology and medical institutes of Mexico City.

Dr. Eric Ogden, professor of physiology, will be a guest speaker in August at University College Hospital, London. Doctor Ogden will also attend the Glasgow meeting of the Physiology Society.

Chauncey D. Leake, Ph.D., vice-president and dean, was the speaker at the Sixteenth Annual Banquet of the Tulane Medical History Society in New Orleans. He spoke on "The Historical Developments of Medical Ethics and Etiquette."

University of Wisconsin
Medical School

The Division of Graduate Medical Education presented a course in poliomyelitis for physicians that covered the period from June 28 through July 3 and along with the academic aspects covered the practical aspects of the diagnosis and treatment of the disease. Each of the physicians participating had an opportunity to learn the techniques of muscle testing, the application of hot packs, details concerning muscle reeducation, respirator care along with the epidemiologic aspects of infantile paralysis.

Dr. Hart E. Van Riper, medical director of the National Foundation for Infantile Paralysis, Inc., opened the course at the Medical School on June 28, 1948.

This course was arranged in cooperation with the Wisconsin County Chapters of the National Foundation for Infantile Paralysis, Inc., and the Wisconsin Hospital Association.

There is to be a "Symposium on Steroid Hormones" on September 6, 7 and 8 at the University. This is to be a part of the University of Wisconsin Centennial celebration and the sponsoring and participating groups, besides the medical school, are the Department of Zoology, College of Agriculture and Biochemistry Division, Wisconsin Alumni Research Foundation, the Committee on Growth acting for the American Cancer Society, and the McArdle Memorial Laboratory for Cancer Research. The National Research Council and the Alumni Research Foundation are underwriting certain of the expenses in connection with this Symposium. It is to be of interest to clinicians, chemists, biologists, agricultural specialists, and other scientific groups. Such well known scientists as Drs. Louis Fieser, Konrad Dobriner, Eleanor Venning, Seymour Lieberman, Dwight Ingle and others have accepted the invitation to speak during the course of the Symposium.

Accommodations for those who are interested in attending the entire Symposium will be available at the Elizabeth Waters Dormitory on the Wisconsin campus and will include room and board for $16.25. Reservations may be made with Dr. Henry Lardy, Biochemistry Department, University of Wisconsin, Madison 6, Wisconsin.

The official registration of physicians who returned from many parts of Wisconsin and other states to celebrate the Annual Alumni Day recently held was 236. The guest speaker for the occasion was Dr. John W. Lawlah, a former medical student of the University of Wisconsin who finished the first two years of his medical course at the state school, later becoming Dean of Medicine at Howard University College of Medicine in Washington, D. C. The subject of his talk was "Thoughts on the Supply, Distribution, and Opportunities for Training of the Negro physician."

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University of Colorado
School of Medicine

The University of Colorado Medical Center has announced the creation of a Division of General Practice in the Department of General Medicine. The new Division will be inaugurated with the September term. Dr. A. C. Sudan, Denver, first American Medical Association general practitioner award winner, will head the new division on a voluntary basis. He will be assistant professor of general practice. Other personnel in the new division will be announced shortly.

The appointment of an assistant professor in general practice guarantees an understood place on the faculty of the school which has long been needed, since the charge has been made that all teaching has heretofore been carried on by specialists in the various medical fields. The Division of General Practice will screen all admissions both to Denver General and Colorado General Hospitals. New clinic patients will get a thorough uniform general examination by General Practice personnel, on admission.

The creation of the new division also will be of vital assistance to the residents in general practice now training

at the school, and hospital assignments, particularly in the medical wards, will be one of their duties.

An annual lectureship in surgery has been established by Dr. Oscar T. Clagett, 1933 alumnus, now chief of the section on thoracic surgery at the Mayo Clinic, Rochester, Minn. The first lecturer will be Dr. Owen H. Wagensteen, professor of surgery at the University of Minnesota.

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University of Virginia
Medical Department

The tenth biennial award of the John Horsley Memorial Prize in Medicine was made on April 28, in connection with the Sigma Xi annual initiation of new members. The award consists of a certificate and a prize of $600. The prize was founded in 1927 by Dr. J. Shelton Horsley of Richmond in memory of his father. The winner of this year's award was Dr. James Workman Culbertson, class of 1940, for his research on the "Effect of Various Types of Sympathectomy upon Vasopressor Responses in Hypertensive Patients."

Dr. Otto Loewi, research professor of pharamcology at New York University College of Medicine, gave a series of lectures in May. Doctor Loewi's visit was sponsored by the Richmond Area University Center. Among Doctor Loewi's subjects were "The Transmission of Nervous Impulses," "The Control of Internal Secretions," and the "Relation of Value and Effect of Works of Fine Art."

Dr. John Riddervold, chief of surgery at the hospital in Sauda, Norway, visited the university May 17th and 18th. Doctor Riddervold came to this country recently for a study visit to various medical schools in the country.

May 27th, Alpha Omega Alpha, National Honorary Medical Fraternity, presented as guest speaker Dr. Austin M. Brues of the Argonne National Laboratory. Doctor Brues spoke on the subject: "The Toxicity and Medical Usefulness of Radioactive Materials."

Dr. Samuel Doswald Sturkie (Univ. of Ga., 1932) has been appointed associate professor of preventive medicine to fill the vacancy created by the resignation of Dr. Thomas Shepherd Englar.

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College of Physicians and Surgeons
Columbia University

New Appointments: Dr. Samuel L. Peck, associate clinical professor of dermatology; Dr. L. E. Siltzbach, assistant clinical professor of medicine; Dr. Solomon Silver, assistant clinical professor of medicine; Dr. Louis J. Soffer, assistant clinical professor of medicine; and Dr. Arthur S. W. Touroff, clinical professor of surgery. All appointments are effective July 1, 1948.

During the year, sixty-four Columbia medical students received scholarships amounting to $23,320, the report revealed. The entering class in the School of Medicine totaled 111 students. The entire student body in the school was 442. The postgraduate program for training general practitioners and specialists attracted 2,424 physicians, of which fifty-five per cent were veterans and nearly five per cent were physicians from foreign countries.

A memorial service was held June 8 for Dr. William Darrach, dean emeritus and professor of clinical surgery.

The college has received a bequest amounting to approximately $140,000 for use in medical research. The fund, which was received from the estate of the late C. Evaretta Romaine, will be used to investigate diseases of the blood system and other medical problems. The bequest will be set up as the Dr. DeWitt C. Romaine Fellowship.

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Baylor University
College of Medicine

New Appointments: Dr. H. E. Hoff, to the B. F. Hambleton Professorship of Physiology and chairman of the department; Dr. Berne L. Newton, assistant professor of pathology; and Dr. Fred M. Taylor who has been appointed

research associate and instructor in the department of pediatrics at Baylor University College of Medicine. Doctor Hoff comes to Baylor from McGill University, where he was Joseph Morley Drake Professor of Physiology. Doctor Hoff was a native of Seattle, studied at the University of Washington, and obtained his Ph.D. from Oxford University, England, where he was a Rhodes scholar. He received his medical degree from Harvard and taught at Yale University before going to McGill. Doctor Newton is also a graduate of McGill and received his training in pathology at the Royal Jubilee Hospital, Victoria, B. C. He has been associated with Dr. Harry S. M. Greene as a Jane Coffin Childs Fellow in medical research at Yale University College of Medicine, where, in addition to his teaching duties, he has carried out extensive research on cancer.

Dr. Fred M. Taylor was recently separated from active military duty, having been assistant Chief of the Pediatrics Section at Brooke General Hospital, Fort Sam Houston, Texas, since April, 1946. Doctor Taylor received his M.D. degree from Stanford in 1943. He served his internship in the University of Colorado School of Medicine and residencies in pediatrics at the University of Colorado Hospital and Children's Hospital, Denver, Colorado.

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Medical College of Virginia

Dr. Edward Jerald Van Liere was awarded the honorary degree of doctor of letters at the one hundred and eleventh Commencement program held June 8. Doctor Van Liere served as acting dean of the school of medicine of the University of West Virginia from 1935 to 1937, when he was made dean, the position which he holds at the present time. He has a bachelor of arts degree and a master of science degree from the University of Wisconsin, a M.D. degree from Harvard University and was graduated from the University of Chicago in 1927 with a Ph.D. degree.

Dr. William Branch Porter represented the American Medical Association, the American Board of Internal Medicine and the Medical College of Virginia at meetings of the British Medical Association held June 21 through July 2 at Cambridge University. Doctor Porter is chief of the department of medicine and professor of medicine at the Medical College of Virginia. Following the Medical Association meetings, Doctor Porter will be sent by Surgeon-General Bliss of the United States Army on a lecture tour in the United States zone of Germany and Austria. He will lecture and inspect military medical schools in fifteen of the major cities of the two countries. Doctor Porter served throughout the war and is still serving on the civilian consultant staff for General Bliss.

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Temple University Medical School

Contributions for research projects: U. S. Public Health Service—$20,152 for continuation of the research project "Electrokymography of the Heart and Blood Vessels," by Drs. Edward Chamberlain, George Henny and Burt R. Boone. A grant of $8,000 to finance one year's work by Dr. Machteld E. Sano on "The Lability of the Lymphomata." A grant of $4,000 to finance one year's work by Dr. Mona Spiegel-Adolf on the problem of "Ultra-spectrographic Studies of Nucleic Acids in Tumors." A grant of $10,000 to Dr. Valy Menkin on the problem of "The Relation of Cellular Injury to the Development of Neoplasia;" also the "Chemotherapy of Experimental Leukemia." A grant of $18,500 on the problem of "Physical and Physiological Studies of the Heart and Circulation."

The National Advisory Health Council—A grant of $6,000 in support of research project by Dr. Robert H. High, "Study of Effect of Streptomycin in Combination with Other Drugs in the Treatment of Tuberculosis in Infants and Children."

Bureau of Medicine and Surgery, U. S. Navy—A grant of $6,180 to Dr. R. H. Peckham for "The Experimental

Determination of Neutrality in Sunglasses." Smith, Kline & French—A grant of $27,555 for research in pharmacology. John Wyeth, Inc.—A grant of $1,200 for medical research.

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State University of Iowa
College of Medicine

Dr. Adolph L. Sahs has been appointed head of the department of neurology. Doctor Sahs has been professor and acting head of the department since the retirement of Dr. Clarence Van Epps in 1946. A native Iowan, the new department head received his premedical and medical education at the University of Iowa, receiving his M.D. degree in 1931. He joined the staff of the neurology department in 1933 as an instructor and rose to the rank of full professor of neurology in 1946.

President Hancher also announced the appointments of four others to the staff of the College of Medicine, including Dr. Frederick H. Hesser as assistant professor of neurology. A medical graduate from Johns Hopkins in 1937, Doctor Hesser comes to Iowa from a post as assistant neurologist and instructor in neurology at Duke University.

Newly appointed assistant professor of pediatrics, director of the State Services for Crippled Children and medical director of the School for Severely Handicapped Children is Dr. Raymond R. Rembolt.

Dr. Wendell P. Stampfli has been appointed assistant professor of radiology.

Dr. William B. Bean, associate professor of medicine at the University of Cincinnati College of Medicine, has been appointed to succeed the late Dr. Fred M. Smith as head of the department of medicine. Doctor Bean is a graduate of the University of Virginia.

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Jefferson Medical College

Commencement exercises were held June 4, 1948. The Degree of Doctor of Medicine was conferred on 148 men. The Commencement Address was delivered by Dr. Fred Pierce Corson, Bishop of the Methodist Church, on "The Instincts of the American Mind."

Honorary Degrees were conferred on the following: Doctor of Laws, Paul Gray Hoffman, Economic Cooperation Administrator, in Absentia; Doctor of Science, Dr. John H. Gibbon, professor of surgery and clinical surgery, emeritus Jefferson Medical College, and Dr. Le Roy A. Schall, professor of otology and laryngology and head of the department, Harvard Medical School (Doctor Schall is an alumnus of the Jefferson Medical College).

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Southwestern Medical College

Construction on the new temporary cancer research laboratory at Southwestern Medical College is nearing completion. The temporary building will house laboratory projects under the direction of Dr. Allen F. Reid, chairman of the Department of Biophysics; Dr. Arthur Grollman, chairman of the Department of Experimental Medicine; Dr. Carl A. Moyer, professor of experimental surgery; and Dr. Max H. Huffman, research professor of biochemistry.

The temporary building was provided by the bureau of facilities of the United States Office of Education. Construction and modification costs and operational costs are being financed out of a joint grant of $100,000 to Southwestern Medical Foundation of $50,000 from the Damon Runyon Cancer Research Fund and $50,000 from the Variety Club Foundation of Texas.

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George Washington University
School of Medicine

The new George Washington University Hospital will offer about three times as much care to Washington's needy as was made available from the dispensary at the old building. Dean Walter A. Bloedorn, medical director of the hospital, announced yesterday that when all clinics are operating at capacity, the staff at the new building will be able to care for 1,200 to 1,300 patients a month

compared to 450 monthly in the old building. Additional space and equipment is making it possible to expand the program of the Outpatient Department. About 90 Washington physicians are donating their time for the operation of these services under the direction of Dr. Clarence Hartman of the hospital staff. Supplies, equipment and space are provided by the hospital.

Nine new services, including a clinic in plastic surgery, are being made available to the sick who canont afford to receive treatment from their own physicians.

The American Cancer Society has awarded the university $50,000 for cancer research.

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University of Washington
School of Medicine

Dr. Robert H. Williams, of the Harvard faculty, has been appointed professor and head of the department of medicine. Dr. Russell R. De Alvarez, a graduate of the University of Michigan, 1935, has been appointed head and professor of the department of obstetrics and gynecology.

At the present time $9,000,000 worth of construction is under way. These new buildings will house all the basic medical sciences, the clinical facilities for the School of Dentistry, the library and auditorium and administrative offices for medicine, dentistry and nursing. A 500 bed teaching hospital, to cost $10,000,000, is in the offing.

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College of Medical Evangelists

Dr. George Tryon Harding, clinical professor of psychiatry at the Ohio State University College of Medicine, and medical director of the Harding Sanitarium in Columbus, Ohio, was elected president of the college. Doctor Harding will take office on September 1, 1948. Dr. Walter E. Macpherson, for six years president of the College of Medical Evangelists and formerly its dean, will become vice-president of the college and chairman of the section on medicine.

Yale University Medical School

Dr. John F. Fulton, chairman of the Yale Department of Physiology and noted biographer, will deliver the William Withering Memorial Lectures at the University of Birmingham, England, in July. Doctor Fulton will deliver four lectures on the physiological basis of the surgical operation known as frontal lobotomy.

Doctor Fulton will receive an honorary Doctor of Science degree from the University of Birmingham on July 3.

The William Withering Lectures were established at the University of Birmingham Medical School in honor of one of the university's most distinguished graduates who discovered the action of the drug digitalis in 1785.

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Loyola University
School of Medicine

The Loyola University School of Medicine has been renamed the Stritch School of Medicine in honor of Cardinal Stritch. The school is undertaking to raise $12,000,000, part of which is for the new building in the West Side Medical Center, which will house both the medical and dental schools.

Dr. Julius Sendroy, Jr., professor of chemistry and chairman of the Department of Experimental Medicine, has been appointed to the newly created post of associate research executive, in charge of chemistry, at the Naval Medical Research Institute, National Naval Medical Center, Bethesda, Maryland.

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Boston University
School of Medicine

Expanding the cancer research and teaching program, the receipt of a $24,950 grant from the United States Public Health Service, and the appointment of Dr. Henry M. Lemon as coordinator of the program have been announced. The grant will be used exclusively for cancer teaching and research, not for any building expansion.

Albany Medical College

Dr. Richard Townsend Beebe has been appointed professor of medicine and director of that department at the College and Physician-in-Chief at the Albany Hospital, effective July 1, 1948. He succeeds Dr. L. Whittington Gorham in these positions.

Through a grant of $24,717 from the National Cancer Institute of the U. S. Public Health Service an independent Professorship of Oncology has been established. Dr. L. Whittington Gorham has been appointed to the newly created professorship also effective July 1, 1948.

Dr. Edward S. Rogers, formerly assistant professor of medicine, has resigned to become dean of the School of Public Health of the University of California.

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Louisiana State University
School of Medicine

Drs. Carl Merrill Whorton and Frank C. Womack will join the faculty July 1 as assistant professors of pathology. A grant of $15,364 has been received from the War Department for continuation of studies on bacitracin in the department of surgery. The investigation was inaugurated on July 1, 1947, on a previous grant of $15,222 from the same source. The National Cancer Institute, U. S. Public Health Service, has awarded a grant of $19,941 effective July 1, 1948, for development of the teaching and research programs in cancer. Dr. Walter J. Burdette, assistant professor of surgery, has been designated coordinator of the cancer program.

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University of Tennessee
College of Medicine

A portrait of Dr. Orren W. Hyman, dean, was presented to the university February 11, the gift of medical alumni and friends. Doctor Hyman received his LL.D. in 1938 from Southwestern College, Memphis. He has been with the University of Tennessee since 1913 and has been dean of administration and dean of medicine since 1925.

University of Chicago
School of Medicine

Construction of the new cancer research hospital, adjoining the west wing of the University Clinics, was started May 3. The estimated cost will be $2,000,000. The major part of the seven story building will consist of laboratories and facilities for research. Two floors will provide fifty-two beds for patients; another floor will be devoted to outpatients.

Dr. Dallas B. Phemister, chairman and professor of the department of surgery, was recently awarded the honorary fellowship of the Royal College of Surgeons of England for outstanding contributions to the pathology of surgical shock and lesions of the bones and joints.

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New York University
College of Medicine

Dr. Hans Kraus has been appointed assistant professor of clinical rehabilitation. As a member of the Department of Rehabilitation and Physical Medicine, Doctor Kraus will be associated with the Rehabilitation and Physical Medicine Service in Bellevue Hosptal, and wll be in charge of muscle re-education and therapeutic exercise at the Institute of Rehabilitation and Physical Medicine of the New York University-Bellevue Medical Center.

* *

Washington University
School of Medicine

Dr. Robert E. Shank, New York, has been appointed professor of preventive medicine and head of the department of preventive medicine and public health. Doctor Shank is a graduate of the school of medicine, 1939, and is at present with the William H. Park Laboratories in New York.

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University of South Dakota
School of Medicine

Dr. Jacob Belogorsky has been appointed assistant professor of pharmacology.

University of Missouri
School of Medicine

Dr. Trawick H. Stubbs, assistant dean Emory University School of Medicine, has been appointed dean, succeeding Dr. Dudley S. Conley, who retires at the end of the present college year under the age requirement.

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University of Maryland
School of Medicine

Dr. H. Boyd Wylie, acting dean for several years and on other previous occasions when there was a vacancy in the deanship, has been appointed dean.

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Harvard Medical School

Dr. Francis D. Moore has been appointed surgeon in chief of the Peter Bent Brigham Hospital and Mosely professor of surgery at Harvard, where he is now assistant professor of surgery. He succeeds the late Dr. Elliott C. Cutler. Doctor Moore graduated from Harvard in 1939.

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Wayne University
College of Medicine

Dr. Hardy A. Kemp has resigned the deanship. He will go to Baylor University College of Medicine to become dean of graduate medical education. Doctor Kemp was at one time a member of the Baylor faculty.

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University of North Dakota
School of Medicine

Dr. Alfred H. Lawton, dean, has resigned the deanship and his professorship.

General News

U. S. Army Offers Public Health Positions in Germany and Japan

The Department of the Army acting through the overseas commands is engaged in a great program of assisting the conquered countries to restore and rehabilitate themselves. One of the most important phases of this program is the health aspect. Supervision by highly qualified American doctors of the local medical practice and procedures is essential to insure that the medical aid provided is used in the most practical and efficient manner, and also to insure that there is a flow of information on new techniques between the United States and the occupied countries, as well as exploitation of new techniques developed in the occupied countries.

This work offers to the persons engaged in it great opportunities to deal with people in numbers and under conditions not normally available in the United States. It is a first rate challenge to the courage and ingenuity of personnel participating and also offers attractive returns not only in money but also in the knowledge that each individual is making a definite and far reaching contribution to the efforts of this country to consolidate in peace the victory won in war.

At the present time the Department of the Army has six Public Health positions available, one in Germany and five in Japan. These positions are civilian jobs under the protection of Civil Service, although they do not give permanent Civil Service status to the incumbents. They are rated under the Civil Service scale at P-6, the pay for which is $7,102.20, augmented by a 25% overseas differential, making a total annual salary of $8,877.75. In addition the government pays transportation from the United States to the overseas area and return transportation at the end of the two-year contract.

Persons who accept these positions may expect to be joined by their families overseas within a few months. Transportation of families and household goods is also at Government expense. Living expenses overseas are somewhat less than they are currently in the United States. The Government makes available to its employees adequate housing at a reasonable charge. Food is purchased from Army commissaries and all normal civilian facilities are available through Army PX's, hospitals, schools, messes and clubs.

The general nature of the duties to be performed in Germany are to attend weekly meetings with the Public Health Committee of the Allied Kommandatura in Berlin; to supervise and inspect the operation of United States hospitals in the U. S. Sector of Berlin; to direct with the use of approved methods in the prevention and control of communicable diseases in the U. S. Sector of Berlin; to coordinate the activities of military and civilian Police & Health Department employees in the VD Control Program; and to establish priorities on the use of available materials for the repair of hospitals and to direct the allocation of beds for specific use.

The chosen candidate must be a graduate doctor of medicine with considerable training in public health and administration or equivalent practical experience in those fields. He must be of the highest caliber not only intellectually but personally since he will represent the United States in a quadripartite body.

The positions in Japan entail the following responsibilities:

This individual will be assigned as Public Health Officer to a prefectural or special area military government team, and will be responsible for all public health activities of military government within the prefecture or special areas. He will supervise and give surveillance to Japanese health officials with regard

to the manner of performance of general public health and sanitation program, insect and rodent control and environmental sanitation, immunization program, hospitalization and medical care for the Japanese, general control measures for major epidemic diseases, VD treatment and control programs, and will closely watch the distribution and use of medical supplies. He will review Japanese health measures and assist the Japanese public health officers in planning future public health activities.

A successful candidate must be a graduate of an approved medical school and have completed one year internship. Experience should include two or three years work in field of medicine. It is desirable that he be in the age group of 30-45, willing to serve in isolated areas, strong enough physically to make inspection trips under difficult traveling and weather conditions, and if possible, some record of military experience and administrative experience.

Any persons who feel that they might be interested in receiving further details about any of these positions are requested to write to Personnel & Training Branch, Department of the Army, Pentagon, Washington 25, D. C. They should include four copies of Form 57, Application for Federal Employment, which may be obtained at any post office.

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National Security Resources Board

Dr. James A. Crabtree, deputy surgeon general of the U. S. Public Health Service, has been given leave to serve as director of medical services of this Board.

Doctor Crabtree has been engaged in public health work since 1926. Until 1934 he was associated with the Tennessee State Health Organization, after which for four years he was Associate Director of Health and Safety of the Tennessee Valley Authority. He entered the commissioned corps of the U. S. Public Health Service in 1938, where his first assignment was in the National Cancer Institute. He served as Executive Secretary of the Health and Medical Committee, an organization established by the National Defense Council in the early days of World War II to mobilize the health and medical resources of the nation. Later he served as medical consultant to the War Production Board and the Lend Lease Administration. Doctor Crabtree, while serving as Medical Director for the Office of Foreign Relief and Rehabilitation Operations, developed the preliminary plans and agenda for the health organization which was created under UNRRA, the successor organization.

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Life Insurance Medical Research Fund

An additional $103,000 in research funds for heart disease has been announced by the Life Insurance Medical Research Fund, raising to nearly two million dollars the amount provided by the Fund since it was organized in December, 1945. The awards include 12 student fellowships, three postgraduate fellowships and nine grants in aid to hospitals and universities. Purpose of the fellowships is to help meet today's pressing need for qualified men and women trained in research techniques. Student fellowships, amounting to between $1,500 and $1,800, go to students who have not yet received their doctorate degrees and provide for a year's additional undergraduate training under leading scientists. Postgraduate fellowships, amounting to between $2,500 and $4,000, go to graduate workers for similar study.

Largest grant in aid is $18,375, which will go to Western Reserve University for research by Dr. Normand L. Hoerr. To date, the Fund has made 103 grants in aid to forty-eight medical schools and has provided support for sixty research fellows. Today's list of awards brings the 1948 allocations to $637,000.

Book News

The Natural History of Disease

By John A. Ryle, M.D., Professor of Social Medicine in the University of Oxford. Ed. 2. Oxford University Press, London. 1948. Price, $7.50.

This book tells a story as no other book does. It can be picked up and read—beginning at any chapter—with interest and with pleasure. It is more like a romance than a textbook. The style is in the nature of a discourse.

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Topics in Physical Chemistry: A Supplementary Text for Students of Medicine

By W. Mansfield Clark, Ph.D., DeLamar Professor of Physiological Chemistry, Johns Hopkins University School of Medicine. The Williams & Wilkins Company, Baltimore. 1948. Price, $10.

Intended for review and reference by the medical student. The author discusses topics which experience has shown are most needed. The book contains a description of the chemical balance and measurements with volumetric apparatus as well as chapters on more abstruse subjects. Topics are confined to physical chemistry. The book is unique and should prove valuable and useful.

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Diagnosis and Treatment

By Thomas Addis, M.D., Stanford University. The Macmillan Company, New York. 1948. Price, $8.

The author says that this book is written because he has come to the conclusion that the present day treatment of patients with renal disease is inadequate and sometimes dangerous. None of the current proposals take proper cognizance of the therapeutic efficacy of rest. The author's methods are set forth clearly. They can be used in the doctor's office by the patient, the doctor and the office nurse. Complicated laboratory procedures are eliminated.

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Refresher Course in Male Hormone Therapy

Published by the Ciba Pharmaceutical Products, Inc., Summit, N. J.

A complete review of the literature with hundreds of abstracts.

Psychiatry in a Troubled World

By William C. Menninger, M.D., General Secretary, the Menninger Foundation, Topeka, Kansas; Chief Consultant in Neuropsychiatry to the Surgeon General of the Army, 1943-1946. The Macmillan Company, New York. 1948. Price, $6.00.

Here is what the author terms "a record of the evolution of psychiatric practice in the Army." In reality, this reviewer regards it as a history of psychiatry from World War I to—today. Reading this book was like reading an interesting—and instructive—novel. It was hard to lay it away. Part I is more for the physician. Part II is good reading for anyone—professional man or layman. It is full of good common sense and points the way on how to get along with people. The author has done a better piece of work than he gives himself credit for.

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Gardiner's Handbook of Skin Diseases

Revised by John Kinnear, M.D., Lecturer in Diseases of the Skin, St. Andrew's University. Ed. 5. The Williams & Wilkins Company, Baltimore. 1948. Price, $4.50.

Would that all textbooks for students were the size and compass of this book. It deals adequately with the common diseases and briefly with the rarer ones. Although concise, it is complete.

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Diseases of the Chest

By Robert Coope, M.D., Liverpool, England. With a foreword by Lord Horder. Ed. 2. The Williams & Wilkins Company, Baltimore. 1948. Price, $7.50.

An essay in medical education prepared to set forth how diseases of the chest should be taught. The discussions on treatment are excellent. Students will like this book.

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A Textbook of Clinical Pathology

Edited by Francis P. Parker, M.D., Associate Professor of Pathology, University of Virginia School of Medicine. Ed. 3. The Williams & Wilkins Company, Baltimore. 1948. Price, $9.

Rewritten; some chapters rearranged. Emphasis on the interpretation of laboratory findings is still the principal feature of the book.

Widening Horizons in Medical Education: A Study of the Teaching of Social and Environmental Factors in Medicine

A report of the Joint Committee of the Association of American Medical Colleges and the American Association of Medical Social Workers. Co-chairmen: Jean A. Curran, M.D., and Eleanor Cockrill. The Commonwealth Fund. New York. 1948. Price, $2.75.

Three major aspects of illness—physical, emotional and social—inextricably interwoven, must be included in medical teaching. The medical student must learn to recognize the social and environmental factors in every case, to evaluate them in relation to the present medical problems and to assume responsibility for them as a part of diagnosis and treatment. These are the basic assumptions underlying this survey of medical-social teaching in the United States.

In 1941 the Association of American Medical Colleges appointed a subcommittee of the Committee on the Teaching of Public Health and Preventive Medicine to explore the subject of medical-social teaching. On the basis of the data obtained from preliminary questionnaires sent to seventy-six medical schools a continuation of the study was voted, and the subcommittee made an independent body. In 1943 the American Association of Medical Social Workers was invited to collaborate, and the Joint Committee on the Teaching of Social and Environmental Factors in Medicine was formed to prosecute the study.

In this book the Committee tells in detail how various schools have tried to give their students an understanding of the social and environmental factors in medical practice. Numerous detailed case reports illustrate the importance of these factors and the ways in which they were studied and taken into consideration in the handling of the cases. In addition to the data obtained in this survey of medical schools, the Committee presents its analysis of the teaching methods used and its recommendations for further improvement in the teaching of the social and environmental factors in medicine.

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Neuroanatomy

By Fred A. Mettler, M.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University. Ed. 2. The C. V. Mosby Company, St. Louis. 1948. Price, $10.

A fine text; a considerable amount of new material on the blood supply and venous drainage of the various portions of the neuraxis is included, material not available in English elsewhere. Many discoveries made through research are also included.

Human Neuroanatomy

By Oliver S. Strong, formerly Professor of Neurology and Neurohistology, and Adolph Elwyn, Associate Professor of Neuroanatomy, College of Physicians and Surgeons, Columbia University. Ed. 22. The Williams & Wilkins Company, Baltimore. 1948. Price, $6.

Revised; emphasizing functional and clinical significance of the structural mechanism of the human nervous system. The section on segmental innervation has been expanded to make a new chapter covering both anatomical and clinical viewpoints. Also expanded are the sections on arterial supply and the venous drainage system of the brain. The text is well illustrated. A good bibliography is an appendix.

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The History of the Heart and Circulation

By Frederick A. Willius, M.D., Professor of Medicine, Mayo Foundation for Medical Education and Research, and Thomas J. Dry, M.B., Ch.B., Associate Professor of Medicine. W. B. Saunders Company, Philadelphia. 1948. Price, $8.

This is a splendid addition to medical history as related to the heart and circulation and their diseases. It is divided into three parts. Part I: The chronologic presentation of knowledge relating to the heart and circulation, 5000 B.C. to 1925 A.D. Part II: Special biographies and Part III, the chronologic presentation of data according to subjects. Numerous references are appended to each biographic sketch. The book is a worth while addition to the general history of medicine. It is complete and makes delightful reading.

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Treatment of Heart Disease

By William A. Brams, M.D., Associate Professor of Medicine, Northwestern University Medical School. W. B. Saunders Company, Philadelphia. 1948. Price, $3.50.

A systematic and practical guide for the treatment of heart disease based on a large personal experience. It discusses concisely but fully the pharmacologic action of drugs used in the treatment of heart disease and, then, the treatment of various heart lesions and lesions associated with other disorders.

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Therapeutic and Industrial Uses of Music

By Doris Soibelman. Columbia University Press, New York. 1948. Price, $3.

A review of the literature—which is quoted in extenso, with narration of experimental work tending to show that there is a place for music as an aid in treatment.

Modern Clinical Psychiatry

By Arthur P. Noyes, M.D., Superintendent Norristown State Hospital, Pennsylvania. Ed. 3. W. B. Saunders Company, Philadelphia. 1948. Price, $6.

Much information about psychiatry is set forth in this book which has been largely rewritten in order that the genesis, dynamics and manifestations of personality functioning may be stated more clearly and more fully. The dynamic principles of the psychoneurosis are presented in more detail and there is more complete reference to the psychosomatic expressions of the organism. Three new chapters on psychotherapy, shock and other physical therapies as well as child psychiatry have been added.

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Diseases of the Throat, Nose and Ear

By I. Simson Hall, M.B., Lecturer in the University of Edinburgh. Ed. 4. The Williams & Wilkins Company, Baltimore. 1948. Price, $4.50.

Brought up to date; small size but complete.

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Textbook of Public Health

By W. M Frazer, M.D., Medical Office of Health, Liverpool, and C. O. Stallybras, M.D., Deputy Medical Officer of Health, Liverpool. Ed. 12. The Williams & Wilkins Company, Baltimore. 1948. Price, $6.50.

Covers the ground.

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An Introduction to Dermatology

Formerly by Norman Walker, M.D., and G. H. Percival. Ed. 11 by G. H. Percival, Professor of Dermatology, University of Edinburgh. The Williams & Wilkins Company, Baltimore. 1948. Price, $9.

A good text, beautifully illustrated in black and white and, especially, in colors.

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Diseases of the Eye

By Sir John Herbert Parsons, F.R.C.S., Consulting Ophthalmic Surgeon, University College Hospital, and Sir Stewart Duke-Elder, M.D., Surgeon Oculist to the King. Ed. 11. The Macmillan Company, New York. 1948. Price, $7.

Revised and brought up to date.

✦ ✦

Laboratory Diagnosis of Protozoan Diseases

By Charles F. Craig, M.D., Colonel, U. S. Army Medical Corps, retired. Ed. 2. Lea & Febiger, Philadelphia. 1948.

New Book — Ready in August!

BUCHANAN
FUNCTIONAL NEURO-ANATOMY

By A. R. BUCHANAN, M.D.
Professor of Anatomy, University of Colorado School of Medicine, Denver, Colorado

Dr. Buchanan has written a direct, simple and easy-to-grasp presentation of neuro-anatomy that is purposely designed to fit into today's crowded medical school curricula. Based on actual classroom use, this textbook utilizes a strictly functional approach to the subject. Ascending and descending tracts are traced from origin to termination at the time of their first mention. In addition, clinical applications are discussed right in the text itself. This method of presentation has been proved successful by the author in holding the interest of students throughout the period allotted to the course.

Approximately 245 Pages, 199 Illustrations, Some in Color.

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